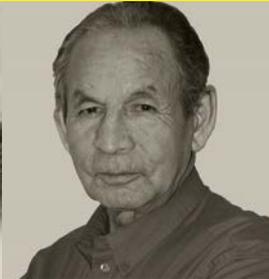


**FIRST NATIONS REGIONAL HEALTH
SURVEY (RHS) 2008/10**



**National Report on Adults, Youth and
Children living in First Nations
Communities**



FNIGC | CGIPN

First Nations Information Governance Centre
Le Centre de gouvernance de l'information des Premières Nations

Since the initial release of the RHS Phase 2 (2008/10) National Report decisions were made to restructure a number of the analyses that resulted in minor changes to estimates across various chapters. For cases in which an estimate discrepancy is detected those presented in the current report (September 2012) shall be taken as correct.

Please contact the FNIGC with any questions you might have in this regard.



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For further information or to obtain additional copies, please contact:

The First Nations Information Governance Centre

170 Laurier Avenue West, Suite 904

Ottawa, Ontario K1P 5V5

Tel: (613) 733-1916

Fax: (613) 231-7072

Toll Free: (866) 997-6248

www.fnigc.ca

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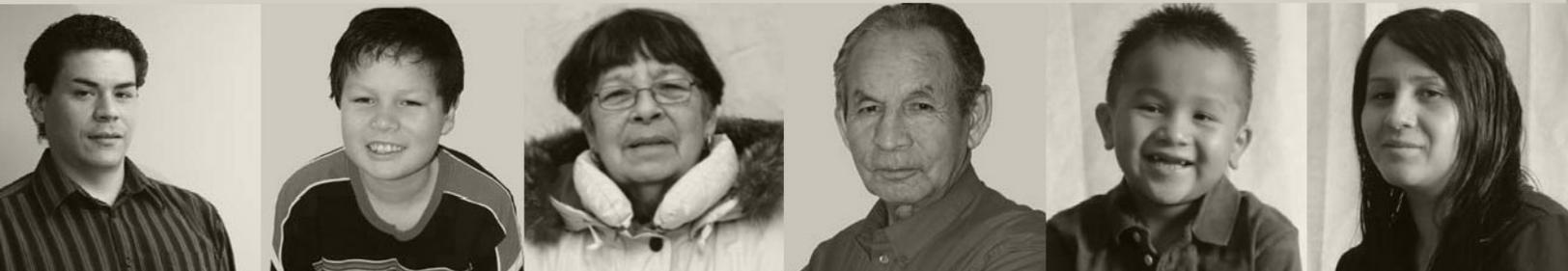
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Acknowledgements

We are pleased to release the *First Nations Regional Health Survey Phase 2 (2008/10) National Report on Adult, Youth and Children Living in First Nations Communities*. First Nations have once again supported a “First Nations” driven research agenda and the result is the creation of this 37 chapter National Report as well as ten regional reports. One of the major accomplishments of the RHS process is the ability to track changes of the First Nations population over an extended period of time. As we embark on each new phase of RHS we are able to see how we are doing as First Nations. Are our lives improving? Are things the same, better or worse?

The First Nations’ Principles of Ownership, Control, Access and Possession (OCAP) changed the research world in Canada with regard to how research is conducted on-reserve and in northern First Nations communities. The RHS process has taken a leadership role in implementing First Nations’ self-determination in the area of research and OCAP has led the way for First Nations to exercise jurisdiction over their information. This is the only way to move forward in the area of research and information management.

RHS has undergone a major transition in recent years and is now permanently housed at the newly created First Nations Information Governance Centre (FNIGC). We now have a good home where we can flourish as a First Nations’ research initiative. Due to the successful track record of the RHS process and the credibility we have achieved in the research world, a new path has opened to another national research initiative. The FNIGC is presently embarking on a new survey process - The First Nations Regional Education, Employment and Early Childhood Development Survey (REES). In addition, FNIGC will continue on with the RHS Phase 3 which will be in First Nations communities in 2014.

The following report contains results on the good, the bad and the ugly realities which exist in our communities. It is imperative that we use this knowledge and data to take action and bring about change to improve the lives of First Nations. Though some results are concerning there are encouraging findings as well, signalling hope for a future in which First Nations can thrive.

We wish to thank all First Nations who participated directly or indirectly in the RHS process, our regions, our communities, and our Peoples. With your belief, support, dedication and commitment to this process, RHS is now recognized as a leading model for Indigenous research. We encourage you to use the findings in the RHS Phase 2 National Report to assist in making a difference for First Nations.

Use RHS data to improve life!

Wela’lioq,



Jane Gray, RN BScN
RHS National Project Manager
First Nations Information Governance Centre

RHS History and Background

The First Nations Regional Health Survey (RHS) is the foremost national First Nations survey, producing important innovations in data sharing, research ethics, computer-assisted interviewing, sampling, field methods and training, and culturally appropriate questionnaire content. Most significantly, the RHS process has invested in individual and institutional First Nations capacity at the community, regional and national levels. The RHS is a unique collaborative initiative of First Nations regional organizations across Canada.

Governance for the RHS is provided by The First Nations Information Governance Centre's (FNIGC) Board of Directors, who represent ten First Nations regions. The RHS is the first national survey implemented explicitly in keeping with the First Nations Principles of OCAP - Ownership, Control, Access and Possession. As the only national research initiative under complete First Nations control, the RHS has given new meaning to First Nations self-determination in research and provided the research community with a demonstration of how the principles of OCAP can be successfully implemented.

In 1996, the Assembly of First Nations Chiefs Committee on Health mandated that a First Nations health survey be implemented every four years across Canada. This mandate came as a result of activities that began in 1994, when three major national longitudinal surveys were launched by the federal government that specifically excluded First Nations living on-reserve and in northern First Nation communities.

The first RHS took place in 1997 ([RHS 1997](#)) and involved First Nations and Inuit from across Canada. The survey was implemented to address First Nations and Inuit health and well-being issues while acknowledging the need for First Nations and Inuit to control their own health information. RHS 1997 is commonly referred to as the pilot survey.

The survey design phase sought to balance First Nations content with content from comparable Canadian surveys while remaining culturally and scientifically valid. The RHS also incorporated sensitive issues such as HIV/AIDS, suicide and mental health. The adult and youth questionnaires included these topics as well as questions on residential school, alcohol and drug use and sexual activity. In addition, the survey design allowed for a region-specific survey module.

The RHS Phase 1 was implemented in 2002-03 with the addition of two new regions, the Yukon and Northwest Territories. At the same time, the Inuit withdrew from the RHS process. Data collection for RHS Phase 1 began in the fall of 2002 and was completed in mid-2003. In total, 80% of the target sample was achieved and 22,602 surveys were collected from 238 First Nations communities.

The RHS Phase 2 was initiated in 2008 and completed in the fall of 2010. The target sample for Phase 2 was 30,000 First Nations individuals in 250 First Nations communities in the 10 participating regions in Canada. The sampling approach for this Phase was improved (from that of Phase 1). In RHS Phase 2, 72.5% of the target was achieved and in total, 21,757 surveys were collected in 216 First Nations communities.

For RHS Phase 2 (2008/10), the questionnaire content underwent extensive reviews and revisions. Comparability, non-response and redundancies were assessed, and new themes were added to the core components based on extensive feedback. The adult survey now includes questions about migration, food security, violence, care giving, depression, the health utilities index and gambling. The youth survey includes questions on community wellness and the children's survey has added questions on immunization.

Community participation in all aspects of design collection and analysis continues to ensure that the data are relevant and the governance and accountability mechanisms are appropriate.

An independent review was completed by Harvard University's Project on American Indian Economic Development in 2006. The Harvard Review Team found that the RHS Phase 1 (2002/03) iteration of the survey was technically rigorous, included numerous improvements over the RHS 1997 pilot survey and had many advantages relative to other surveys internationally.

“Compared to ... surveys of Indigenous people from around the world ... RHS was unique in First Nations ownership of the research process, its explicit incorporation of First Nations values into the research design and in the intensive collaborative engagement of First Nations people ... at each stage of the research process.”

The First Nations Information Governance Centre will continue to seek funding to pursue RHS Phase 3. The RHS continues to be the only on-going cross-sectional survey of First Nations living on-reserve and in northern First Nations communities ever conducted in Canada. As indicated earlier, it is the only national research initiative under complete First Nations control. The RHS has given new meaning to First Nations self-determination in research and provided the research community with a demonstration of how the principles of OCAP can be successfully implemented.

<u>1997:</u>	<u>2002/03:</u>	<u>2008/10:</u>	<u>2013:</u>	<u>2016:</u>
RHS Pilot	RHS Phase 1	RHS Phase 2	RHS Phase 3	RHS Phase 4
9 regions√	completed√	completed√		

Background on the First Nations Information Governance Centre

The First Nations Information Governance Centre was federally incorporated under the Canada Incorporations Act on April 22, 2010. It was mandated through the Assembly of First Nations Special Chiefs Assembly and is governed by a Board of Directors appointed by each First Nation Region. The Centre has a clear mandate to make the most of research and information that will truly benefit the health and well-being of First Nations. It strives to partner with entities that seek to achieve success in working with First Nations through the use of credible information and processes that respect First Nations jurisdiction to own, protect, and control how their information is collected, used and disclosed.

FNIGC Vision:

“Founded on First Nations Principles, the First Nations Information Governance Centre is a premier Indigenous model of research and data excellence for the well-being of our Peoples and Communities.”

FNIGC Mission:

The First Nations Information Governance Centre, under the guidance of its member organizations; will build capacity and provide credible and relevant information on First Nations using the highest standards of data research practices, while respecting the rights of First Nations self-determination for research and information management and in true compliance with the First Nations Principles of Ownership, Control, Access and Possession (OCAP).

The First Nations Regional Health Survey (RHS) Cultural Framework

The First Nations Information Governance Committee (now referred to as the First Nations Information Centre) determined that it was important to begin the development of a First Nations Cultural Framework for the RHS 2002/03. This framework has been carried forward to RHS 2008/10. The goal of the RHS Cultural Framework is to assist in achieving a culturally informed interpretation process that can be presented back to communities in a way that is usable and that reinforces their ways of seeing, relating, knowing and being. A cultural framework will assist in providing a more accurate interpretation of the information shared by First Nations children, youth and adults. Simply stated, the RHS Cultural Framework encompasses the total health of the total person within the total environment.

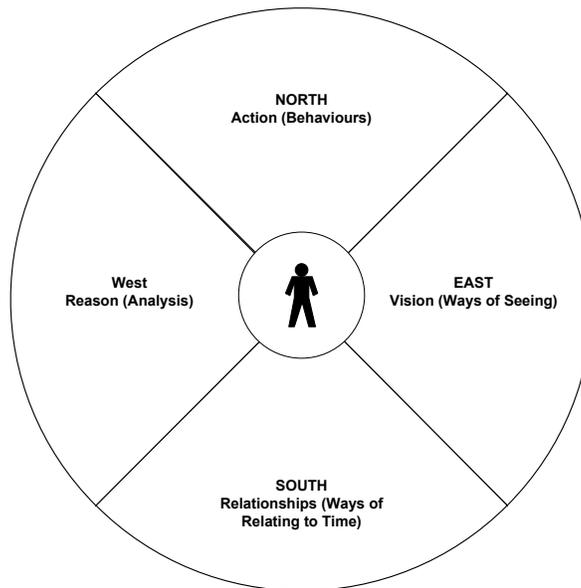
From the beginning, First Nations people have been taught to start with a focus on the people – by giving thanks for their caring, honesty, sharing and strength. Therefore, in keeping with the RHS cultural framework, we wish to extend appreciation to all the First Nations people who participated and shared in this process, before we begin to discuss the organization of this report.

Where the model comes from

This section of the report is designed to help the reader to understand that there is an underlying science behind the cultural framework and resulting organization of this report. The science has been handed down through generations of First Nations people as a cumulated body of knowledge and beliefs.

While it is recognized that Indigenous Knowledge is not a uniform concept across all First Nations in Canada, for most First Nations people there is a common belief in a connection with the natural world. For the purposes of this report and the RHS Cultural Framework, we represent the natural world with a circle. When we begin this report at the centre of the cultural model (see Figure 1), with a focus on First Nations people, it is reflective of the reasons, rules and rationale that are incorporated into the underlying science of the cultural model. In accordance with these results, we will then move from the Centre to the East, South, West, North, and East again. The meaning and content of each quadrant will be elaborated in subsequent sections of this chapter.

Figure 1: RHS Cultural Framework



VISION (Ways of Seeing): Within a First Nations cultural paradigm, vision is considered the most fundamental of principles. Visioning First Nations well-being involves examining the complete picture of health including physical, mental, emotional and spiritual health issues. From an Indigenous Knowledge perspective, visioning will examine what is the ideal state of First Nations health and wellness (what was the standard in the past and what is the desirable/achievable in the future). In order to envision First Nations' health and wellness, it is imperative to establish a baseline of the extent and causes of the current situation. It is from that baseline that First Nations communities and stakeholders can move forward towards the ideal vision.

RELATIONSHIPS (Time/Ways of Relating): Refers to the experiences that one encounters as a result of relationships built over time and examines how we relate to people. It provides an opportunity to gain an understanding of the attitudes and awareness that exist at a particular point in time, regarding the individual, community and national wellness issues.

REASON (Analysis/Reason): Also referred to as learned knowledge. It is where we become reflective, meditative and self-evaluative. It is in this direction that the broader determinants of health are examined.

ACTION (Behaviours): Also referred to as movement and represents strength. This direction explores what has been done about previously identified barriers and how to nurture us as First Nations. This component is important in that it activates positive change to improve programs so that they better achieve the vision (expectations) of First Nations, resulting in the healthy development of their children, families and communities.

It is important to note that the circular models presented in the RHS cultural framework are not medicine wheels. Medicine wheels are related to sacred teachings and understandings that are not discussed in the cultural framework, primarily because of the diversity of Indigenous Knowledge across First Nations. The models presented in this report are designed for use as interpretation tools and are sometimes referred to as "working wheels" or "four directional wheels". We are presenting working tools that can be used to understand the RHS cultural framework. It is within this context that the circular models can be representative of the diverse belief systems across First Nations. The First Nations Information Governance Centre vision for this report, simply put, is to reflect the vision of the First Nations communities. The vision of the First Nations people is

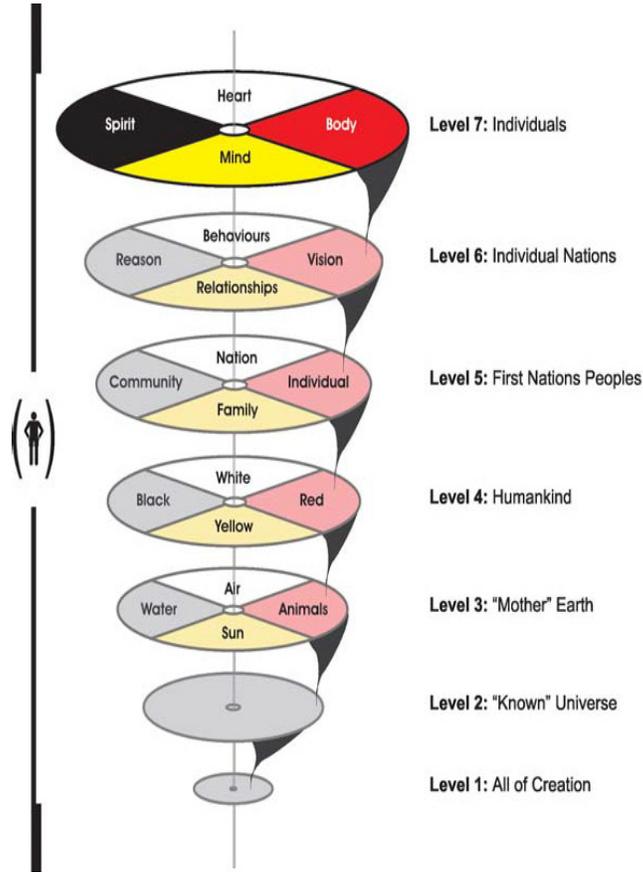
to have cultural respect and understanding entrenched throughout the RHS process. This vision includes First Nations collecting the information, as well as interpreting and organizing the information from a First Nations cultural perspective. The First Nations Information Governance Centre wants to make the information more relevant to the lives of First Nations people. We want to make this more than just another survey/research report on First Nations people. The First Nations Information Governance Centre is moving on to the next step and interpreting the information received from First Nations people from a First Nations perspective.

RHS Interpretative Framework:

This section of the report will introduce and explain the RHS Interpretative Framework. Jim Dumont, Traditional Teacher, prepared a research document to assist in developing a cultural interpretative framework for the First Nations Information Governance Centre. Dr. Mark S. Dockstator further elaborated on this model. The interpretative framework begins with the understanding that First Nations people use the concept of *Wellness*, which, within a Eurocentric viewpoint, is more commonly referred to as *Health*. While it is important to note that there are different philosophical understandings between the concepts of *Health* and *Wellness*, the philosophies are not necessarily mutually exclusive. The concepts are not absolutes or adversarial in nature...they are simply different.

Wellness is a very complex and multi-layered philosophy, which we have tried to simplify through the following diagrams. However, it is important to articulate the complexity of this understanding in order to understand the significance of what questions to ask and how to interpret the information received by the First Nations people. Figure 2 attempts to illustrate, at the simplest level, a First Nations concept of wellness.

Figure 2: Concept of Wellness



Level 1 represents all of Creation – which is infinite;

Level 2 represents the known universe (a human perspective) – which is only a small part of creation;

Level 3 represents one small part of the universe – Earth. Referred to as “Mother Earth” by First Nations people, it is comprised of animals, sun, water and air;

Level 4 represents “Humankind” which is one small part of the animals found on Mother;

Level 5 illustrates one small part of humankind – “First Nations people” – and how we organize ourselves, as individual, family, community and nation;

Level 6 represents Individual Nations and;

Level 7 represents a First Nations person, and how an individual is composed of body, mind, spirit and heart.

We pull out the cultural framework (like an accordion) in Figure 2 to demonstrate that human beings are connected to the natural world, and thus to Creation, through many different levels, or layers, of understanding.

Each level represents only a small portion of the preceding one. All levels are interconnected. This approach to health and wellness is based on BALANCE...of seeking balance, of achieving balance and of maintaining balance. To visualize this model of health imagine each level as a wheel, with each of these wheels rotating on a common axis. If one wheel is out of balance it will affect the balance of the other wheels and also the overall balance of the system. Thus, when we speak of First Nations health, we are referring to the BALANCE of this system.

The RHS Cultural Framework encompasses the total health of the total person within the total environment. This is a holistic and rather complex understanding of First Nation Wellness.

Figure 3

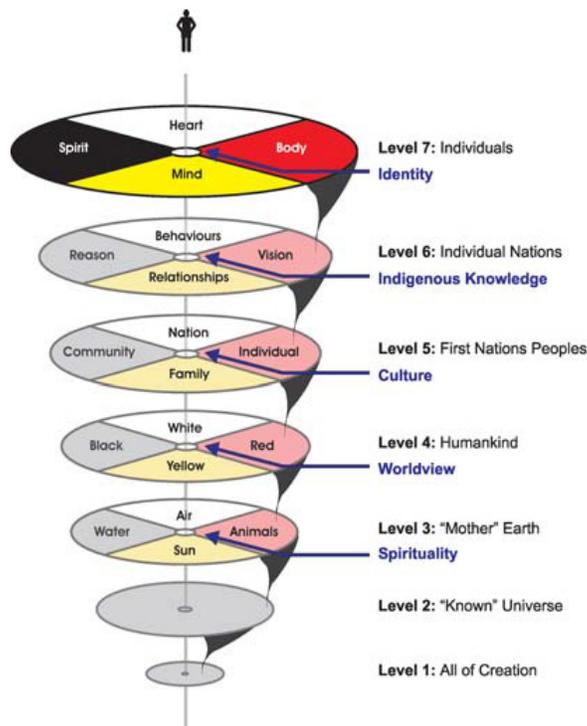


Figure 3 attempts to illustrate the dynamic and multilayered relationships associated with First Nations' Wellness.

Level 1 shows that most First Nations people have a common belief in their connection with Creation.

Level 2 represents how we, as First Nations people, were given our spirituality from Creation and from the Creator, when the known universe was created. Spirituality formulates our belief systems (however they are expressed) and is our direct connection to Creation (both the Act of Creation and the Creator – however they may be expressed and named by the diverse First Nations cultures and societies). Spirituality is connected to Creation and that is why it is found in the centre of the circle and why it is of key importance to First Nations. (Note: Spirituality surrounds the connection to Creation – Level 1 – as represented by the straight line connecting level 1 to level 2).

Level 3 represents that when the Earth was created, as one small part of the universe, humans were created, and this is the stage at which we get our worldview. That is, this is how we as humans understand or make sense of our world. Our worldview connects us to Creation and is expressed in Spirituality.

Level 4 expresses how, as different races of humankind were created, each with their different worldviews, each race is connected to Creation through their language. First Nations people are connected to

and express their worldview through their language, which is in turn connected to their spirituality.

Level 5 depicts how as First Nations people, we are connected to Creation through our culture, which is expressed through our language, which contains our worldview, which is an expression of our spirituality.

Level 6 shows that as individuals, First Nations people are connected to Creation through the knowledge that we have –termed Indigenous Knowledge. These different knowledge systems (which are not the same for all First Nations) are an expression of our cultures, which are expressed in our languages, which are expressions of our worldviews and spirituality ... which all connect us to Creation.

Level 7 illustrates that as First Nations individuals we all develop our own identity, which is formed by that which we know (Indigenous Knowledge), which in turn is connected to our culture, which is an expression of our worldview and spirituality. ...all of which connects us to Creation.

That is why when we speak of First Nations wellness, we speak of Indigenous Knowledge, culture, language, worldview and spirituality as indicators of “health”. These indicators are “core” to an understanding of how we, as a people, keep ourselves “balanced” and therefore “healthy”. This reinforces the need for the RHS Cultural Framework to be used in interpreting the information collected by First Nations people.

How we use the RHS Cultural Framework

The issue identified by the First Nations Information Governance Centre is that an abundance of information has been collected in a way that disrespects First Nations research ethics and principles of Ownership, Control, Access and Protection of Indigenous Knowledge. The goal of the First Nations Information Governance Centre is to replace the Western-based analytical framework with one based on principles common to First Nations principles. This report employs a First Nations culturally appropriate interpretation model as a basis for analysis. This model is by no means complete, but represents a starting point that will be expanded and developed over time and with the building of relationships.

The model is important for explaining why we ask the questions we do in the RHS. The RHS asks questions about language and culture in a “Health Survey”. The First Nations Wellness model highlights the need for such questions. It illustrates that you cannot have an indicator of wellness for First Nations health without also discussing culture, language, worldview and spirituality.

The RHS is designed to be an on-going cross-sectional study and to produce consistent data for First Nations across the country. Since the RHS data will be collected and interpreted by First Nations, the interpretations will be well-informed by First Nations culture and settings, eliminating risks of misinterpretations. The RHS will serve as a useful and realistic model for culturally appropriate, community-based research. Given the on-going nature of the project, the objective is to develop baseline data during

the initial phases. This baseline data will lay the foundation for which comparisons can be made in later years.

Upon the completion of the subsequent rounds of the RHS, analysis can take place to see what impacts different approaches to improving First Nations health have made on this population.

Figure 4

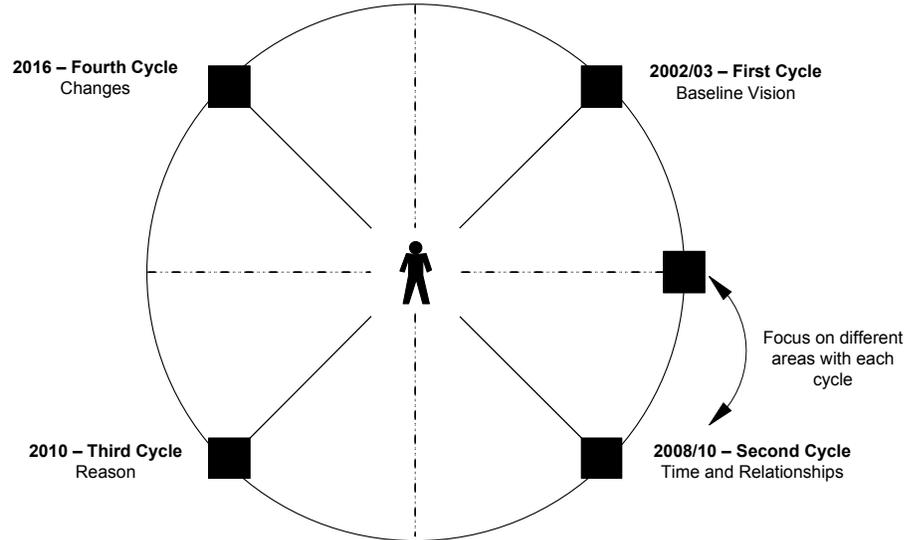


Figure 4 elaborates on the planned RHS using the RHS Cultural Framework rather than a linear framework. Although each cycle will discuss all four quadrants: Vision; Time and Relationships; Reason; and Changes; each cycle will also place a particular emphasis on one quadrant of the model. For example, the emphasis for the RHS 2002/03 was on establishing baseline data and focusing on the vision; that is, the development of the cultural framework. In the current cycle of the RHS, the Cultural Framework is used to explain the impact of time and relationships. The focus of the third cycle of the RHS will be the reasons and rationales related to health/wellness issues, while the fourth cycle will focus on changes—particularly over the extended timeframe from the establishment of the baseline data.

Balance

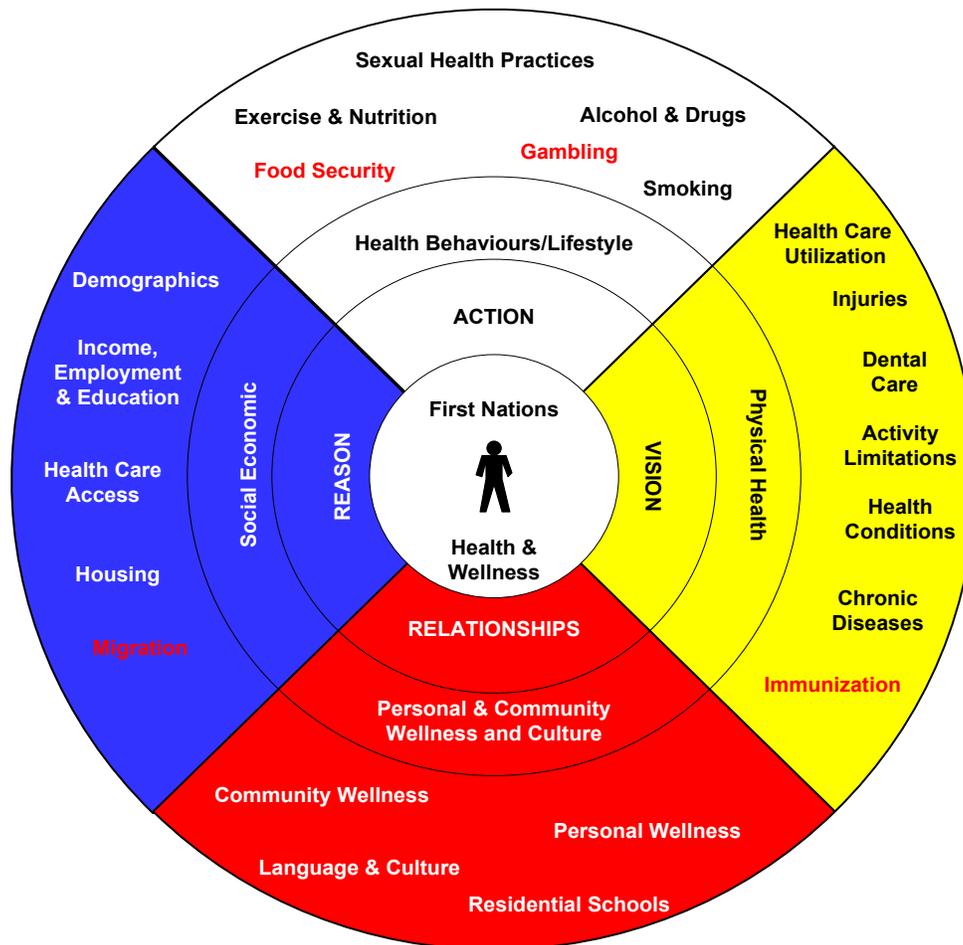
The RHS Cultural Framework will assist in bringing balance to previous research by also drawing out the positive changes related to First Nations wellness. For example, a large proportion of First Nations who quit smoking did so because they became pregnant. This is a positive indicator of wellness, where women placed the wellness of their children first and quit smoking not just during pregnancy but permanently. In addition to providing balance to the reporting by discussing positive changes, it is important for the information presented to be useful to the First Nations reading the report in order to facilitate positive changes in behaviours. The information needs to be presented in such a way so as to clearly identify the warning signs for possible wellness issues and what First Nations can do about them.

Time and Relationships

In the context of First Nations issues, the key to understanding the future is to have a deep and detailed appreciation of the past. However, providing a singular interpretation of history is a challenging task when confronted by the complexity of the relationship between First Nations and the Federal government

Organization of the Report

The RHS 2008/10 collected vast amounts of information regarding the health, social determinants and well-being of First Nations. This information has been summarized into 37 chapters, segmented into adults, youth and children. If we simplify the framework by compressing the seven levels of understanding into one, and overlay all the questions asked in the RHS, then we can illustrate the information collected in the following way:



VISION: Within a First Nations cultural paradigm, vision is considered the most fundamental of principles. Visioning First Nations well-being involves examining the complete picture of health, including physical, mental, emotional and spiritual issues. Research shows that First Nations suffer from poor health. They do not always access mainstream (non-First Nations) social systems, such as health care services (i.e. hospitals and community health programs and services).

Our analysis addresses a wide variety of chronic health conditions and diseases.. In particular, the report focuses on diabetes, a health condition of particular concern to First Nations, the leading cause of health complications, and a major contributor to mortality. Additionally, injury and disability are examined in the context of how they contribute to a reduced quality of life. Health care utilization and preventive care is examined to identify how First Nations employ the health care system. Finally, dental care for all First Nations, and prenatal health, is also explored in this quadrant.

The following list guides the reader as to where to locate these indicators of health in the report:

Health Conditions and Chronic Diseases

- Chapter 10: Chronic Health Conditions (Adult)
- Chapter 24: Health Conditions and Health Status (Youth)
- Chapter 33: Health Conditions and Health Status (Child)

Diabetes

- Chapter 11 : Diabetes (Adult)

Injuries

- Chapter 14: Injury and Disability (Adult)
- Chapter 26: Injury (Youth)
- Chapter 35: Injury (Child)

Health Care Utilization

- Chapter 15: Preventive Care (Adult)
- Chapter 27: Health Care Utilization and Preventive Care (Youth)

Dental Care

- Chapter 13: Oral Health (Adult)
- Chapter 25: Oral Health (Youth)
- Chapter 34: Dental Care Utilization, Baby Bottle Tooth Decay and Treatment Needs (Child)

Prenatal Health

- Chapter 36: Prenatal Health (Child)

RELATIONSHIPS: This section addresses the experiences that we encounter as a result of relationships built over time and examines how we relate to people. The key categories within this paradigm include First Nations personal and community wellness, emotional/mental health, and the importance of traditional culture and language.

Close attention is paid to both suicide and residential schools in order to identify if either of these events contributed to the development of depression, or had a negative impact on either the personal wellness or emotional/mental health of First Nations.

The following list guides the reader as to where to locate these indicators of health in the report:

Personal Wellness

- Chapter 12: Health Status and Quality of Life (Adult)
- Chapter 17: Personal Wellness and Safety (Adult)
- Chapter 29: Personal Wellness and After-School Activities (Youth)
- Chapter 37: Emotional and Behavioural Problems (Child)

Traditional Culture

- Chapter 18: Traditional Culture (Adult)

Community Wellness

- Chapter 16: Community Wellness (Adult)
- Chapter 28: Community Wellness (Child)

REASON: Also referred to as learned knowledge, it is where we become reflective, meditative and self-evaluative. It is in this direction that the broader determinants of health are examined, such as demographics, income, education, language, family structure, housing and living conditions, and health care access.

Housing and living conditions are important determinants to consider when reviewing the status of First Nations health. Equally important are levels of education and income, both of which contribute to overall health. Language embodies all values, attitudes, beliefs and truths and consequently has historically played a significant role in the lives of First Nations. Finally, health care access is important as it reports on selected indicators of access to preventive primary health care measures, including respondents' rating of their access to health care in comparison to the general Canadian population, access to screening and preventive measures, barriers to accessing health care, and access to Non-Insured Health Benefits (NIHB).

The following list guides the reader as to where to locate these indicators of health in the report.

Demographics, Education, Employment and Migration

- Chapter 1: Demographics, Education, Employment and Migration (Adult)
- Chapter 2: Employment and Income (Adult)
- Chapter 3: Education and Language (Adult)
- Chapter 20: Education and Language (Youth)
- Chapter 31: Education and Language (Child)

Housing

- Chapter 4: Household and Living Conditions (Adult)
- Chapter 19: Household Environment (Youth)
- Chapter 30: Household Environment (Child)

Healthcare Access

- Chapter 5: Health Care Access (Adult)

ACTION: Also referred to as movement, it represents strength. This direction explores what has been done about previously identified barriers and how to nurture us as First Nations people.

The use and misuse of illicit substances is closely

examined, with particular regard to smoking, alcohol use and other drug use. Specifically, tobacco use during pregnancy, initiation, cessation, current and former use, as well as amount of consumption, are reviewed. Frequency and type of drug use is also examined. Physical activity, and its relationship to body mass index (BMI), is also examined across all age groups gender groups.

The following list guides the reader as to where to locate these indicators of health in the report.

Substance Use & Misuse

- Chapter 8: Smoking, Substance Misuse and Gambling (Adult)
- Chapter 22: Substance Use and Abuse (Youth)

Exercise, Nutrition, and Food Security

- Chapter 6: Physical Activity and Diet (Adult)
- Chapter 7: Nutrition and Food Security (Adult)
- Chapter 21: Physical Activity and Nutrition (Youth)
- Chapter 32: Physical Activity and Nutrition (Child)

Sexual Health Practices

- Chapter 9: Sexual Health (Adult)
- Chapter 23: Sexual Health (Youth)

According to the RHS model of health developed for this report, we now return to the eastern direction and vision. Having completed a full circle of summarizing some of the information collected by the RHS, the next step will be to look into the future and determine the next steps of the process. The way forward in this research process is to revisit and improve the process for the next data collection phase, scheduled to begin in 2014.

Summary of Process and Methods

First Nations Regional Health Survey (RHS) 2008/10

INTRODUCTION

The First Nations Regional Health Survey (RHS) traces its origins back to 1995. Although initially proposed to fill data gaps, the project has evolved considerably.

Seventeen years later, in keeping with its original mandate from the Assembly of First Nations' Chiefs Committee on Health, the RHS has disseminated results from three rounds of data collection and has solidified its place as the only national research initiative under complete First Nations control.

Results from the 1997 round were released in 1999 and those from 2002/03 (Phase 1) in 2005. Based on the 2008/10 RHS (Phase 2) this current report has been completed, containing 37 thematic chapters.

The following section includes a summary of the process and methods used in the 2008/10 survey and in the preparation of this report. More detailed information will follow in the full "Report on Process and Methods". A quick overview is provided in Table 1 and a brief timeline presented in Table 2.

Table 1. 2008/10 RHS at a Glance

Title	First Nations Regional Health Survey
Acronym	FNRHS or RHS
Mandate	Assembly of First Nations Chiefs Committee on Health
National Governance	First Nations Information Governance Centre - Board of Directors
Regional Coordination	First Nations Regional Organizations
National Coordination	First Nations Information Governance Centre
Number of Regions	10 First Nations Regions (including all provinces and territories except Nunavut)
Target Population	First Nations communities across Canada
Sample Design	Standardized (Cross-sectional)
Sample Size	21,757 surveys; 11,043 adults, 4,837 youth and 5,877 children
Communities	216 included
Length of National 'Core' Components	Adults: 46 minutes Youth: 30 minutes Children: 22 minutes
Region-specific questions	Additional modules of varying length in 8 of 10 regions

Table 2. RHS Timeline

RHS Pilot Survey (1999)

1994	Three Canadian longitudinal surveys launched, excluding First Nations and Inuit.
1995	Funding for first round provided by Health Canada. Indian Affairs and Human Resources Development Canada decline to provide funding.
1996	Mandate from Assembly of First Nations
1996	Direct First Nations and Inuit control established
1997	Development of instruments and methods
1997	Data collection in 9 regions: 14,008 surveys (9,870 adults, 4,138 children)
1998	RHS Code of Research Ethics adopted
1999	Ownership, Control, and Access (OCA) principles first articulated
1999	Final report based on 1997 survey released

RHS Phase 1 (2002/03)

2000/01	Proposals and long-term plans submitted for funding and potential Treasury Board submission
2000/02	Development of instruments and methods for 1 st wave of longitudinal survey
2002	RHS coordination transferred to the First Nations Centre (NAHO)
2002/03	Data collection in 10 First Nations regions: 22,602 surveys (10,962 adults; 4,983 youth; 6,657 children)
2004	Data processing
2005	RHS Phase 1 (2002/03) is released
2006	RHS Phase 1 (2002/03) Independent Review by Harvard University is completed.

RHS Phase 2 (2008/10) – Current Phase

- 2007** Development of RHS Phase 2 – peer reviewed technical proposal.
- 2006/07** Revision of survey instruments and revised methods for 2nd phase of regional survey
- 2008/10** Data collection in 10 First Nations regions: 21,757 surveys (11,043 adults; 4,837 youth; 5,877 children)
- 2010** First Nations Information Governance Centre is formally incorporated. RHS transferred from the Assembly of First Nations (AFN) to First Nations Information Governance Centre.
- 2009/10** Data processing
- 2011** RHS Phase 1 (2008/10) Independent Review initiated by Johns Hopkins School of Public Health
- 2012** Major reports released

COORDINATION AND GOVERNANCE

The RHS is coordinated and governed by First Nations through their regional and national organizations and representatives. As of 2012, the survey partners were:

National

- The First Nations Information Governance Centre (FNIGC)

Regional Coordination and Data Stewardship

- Union of Nova Scotia Indians
- Union of New Brunswick Indians
- First Nations of Quebec and Labrador Health and Social Services Commission
- Chiefs of Ontario
- Assembly of Manitoba Chiefs
- Federation of Saskatchewan Indian Nations
- Treaty 7 Management Corporation (for Treaty 6, 7 and 8)
- First Nations Health Council (B.C.)
- Dene National Office
- Council of Yukon First Nations

2008/10 SURVEY INSTRUMENTS AND METHODS

Data collection was conducted between June 2008 and November 2010 in 216 First Nations communities across Canada. For the purposes of this report, First Nations communities are defined as those on-reserve and in northern Canada (above the 60th parallel). A total of 21,757 surveys were administered. Three age-specific questionnaires were completed for:

- 11,043 Adults, 18 years of age and over
- 4,837 Youth, 12 to 17 years of age
- 5,877 Children, 0 to 11 years of age

As shown below, the surveys addressed a holistic range of priority issues for First Nations.

Adult (18+ years - computer-assisted interview ~46 minutes)

Demographics	Health Conditions	Smoking, Alcohol, Drugs
Languages	Diabetes	Sexual Health
Education	Injury	Pregnancy, Fertility
Employment	Dental Care	Preventative Health Practices
Income And Sources	Disability And Home Care	<i>Depression (New)</i> , Wellness & Mental Health
Household	Physical Activity	Suicidal Ideation and Attempts
Housing Conditions	<i>Food Security(New)</i> and Nutrition	Residential Schools
Water Quality	Traditional Medicine	Community Wellness
Basic Services	Health Services And NIHB	Culture, Spirituality, Religion
Height, Weight	Community Development	<i>Care Giving- New</i>
<i>Migration- New</i>	<i>Violence- New</i>	<i>Gambling- New</i>

Youth (12-17 years - computer-assisted self-administered ~30 minutes)

Demographics	Health Conditions	Smoking, Alcohol, Drug Use
Languages	Diabetes	Sexual Health
Education	Injury	Pregnancy, Fertility
After School Activities	Dental Care	Preventative Health Practices
Household Characteristics	Health Services and NIHB	Wellness, Personal Supports & Mental Health
Height, Weight	Traditional Culture	Suicidal Ideation and Attempts
Physical Activity	Traditional Medicine	Residential Schools
Food and Nutrition	Culture, Spirituality, Religion	<i>Community Wellness- New</i>

Child (0-11 years - computer-assisted by proxy (primary guardian) ~22 minutes)

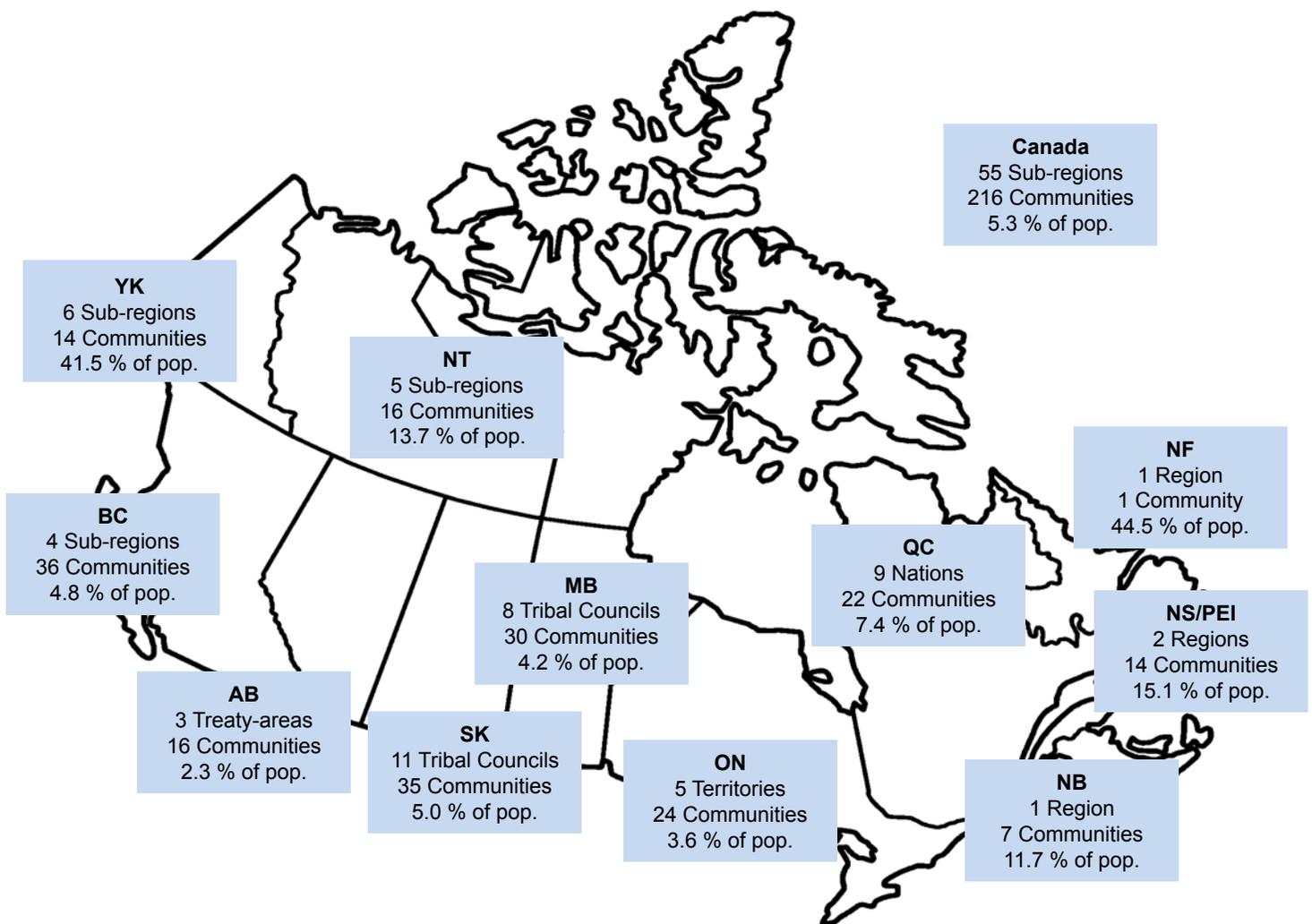
Demographics	Health Conditions	Prenatal Health
Languages	Diabetes	Childcare
Education (Head Start)	Injury	Residential Schools
After School And Social Activities	Dental Health/BBTD	<i>Immunization- New</i>
Household Characteristics	Access To Care	Physical Activity
Parental Characteristics	Height and Weight	Nutrition and Traditional Foods
Breastfeeding	Emotional And Social Wellbeing	

In 8 of 10 regions, questionnaire modules addressing regional priorities were also administered, immediately following the national questions.

First Nations fieldworkers were trained to administer the surveys within their communities, usually in the respondent's home. The fieldworkers used customized software (CAPI: Computer Assisted Personal Interviewing) on laptop computers to collect the vast majority of surveys. Some were completed on paper and subsequently data-entered. Surveys were encrypted and transferred by phone lines from the communities to secure, dedicated servers.

The RHS 2008/10 survey sample was designed to represent the First Nations population living in First Nations communities in all provinces and territories, except Nunavut. Overall, 216 communities were included and 5.3% of the target population was surveyed.

Figure 1: Number of sub-regions and communities and proportional representation of residents in First Nations communities by region



*Figures show the proportion of all First Nations living in First Nations communities that were included in the sample.

Communities of different size categories were selected within each First Nations 'sub-region' (see Table 3) to provide representative samples at the regional and national levels. Locally, individuals were randomly selected within age/gender groups. In all communities, locally updated band membership lists were used.

Table 3: First Nations “sub-regions”

Yukon

6 Regions

Dakh-Ka

Kaska/Dena

North Yukon Region

Northern Tutchone

Southern Tutchone

Upper Tanana

Northwest Territories

5 Regions

Akaiicho

Deh Cho

Tlicho

Gwitch'in

Sahtu

British Columbia

4 Geographic Regions

Coastal Region

Northern Interior

Southern Interior

Vancouver Island

Alberta

3 Treaty Areas

Treaty 6 (Central)

Treaty 7 (South)

Treaty 8 (North)

Saskatchewan

11 Tribal Councils

Agency Chiefs

Battleford Agency Tribal Council

File Hills Qu'Appelle

Independents

Lac LaRonge

Meadow Lake

Prince Albert Grand Council

Peter Ballantyne

Saskatoon

Touchwood Agency

Yorkton

Ontario

5 Territorial Organizations

Association of Iroquois and Allied Indians

Grand Council of Treaty #3

Independent First Nations

Nishnawbe-Ask Nation

Union of Ontario Indians

Manitoba

8 Tribal Councils

Dakota Ojibway

Interlake

Island Lake

Keewatin

North and South Independents

South East

Swampy Cree

West Region

Quebec

9 Nations

Abenakis

Algonquins

Attikameks

Hurons

Innu

Malecite

Mi'gmaqs

Mohawks

Naskapis

Newfoundland

1 Region

Nova Scotia/PEI

2 Regions

New Brunswick

1 Region

Preparation of the Thematic Chapters for this Report

The intent of this report is to provide an overview of the national results for all subject areas covered in the RHS 2008/10 survey, across adults, youth and children. An internal review panel was established to select contributing writers by way of a proposal-based competition. In all, 25 writers were contracted to complete 37 chapters in total.

A wealth of skilled and knowledgeable writers were chosen, both First Nations and non-First Nations, including health workers, academics, consultants and researchers from First Nations community-based organizations, non-governmental organizations, government organizations and universities.

An orientation session was held and writers were presented with detailed writing guidelines to ensure consistency between chapters with respect to content (integration of cultural framework) and style (length, organization, formatting). Chapter writers were provided with relevant statistical output prepared by FNIGC's statistical data analysts. Chapter writers interpreted this output when developing the results section and creating relevant tables/figures.

SPSS version 17 (or higher) was used for all analyses. Estimates were weighted and confidence intervals were calculated using the SPSS Complex Samples Module¹. The module goes beyond the simple-random sampling assumptions of standard statistical analyses, producing estimates based on the relevant details of the sample's design. The weights and specifications of the RHS's complex stratified sample were programmed into the module to enhance the validity of the results. Most analyses were based on 2-way or 3-way cross-tabulations (future focused reports will include higher level multivariate statistical analyses). The following statistical specifications were implemented:

- To protect confidentiality, statistics based on cell sizes containing 5 or fewer respondents were suppressed (denoted by an 'F' within tables).
- Estimates with a coefficient of variation (CV) between 16.5% and 33.3%, reflected moderate to high sampling variability and were supplemented with an 'E' to indicate cautious interpretation. Estimates with a CV greater than 33.3%, reflected extreme sampling variability and were suppressed (denoted by an 'F').

- The difference between groups or categories was considered statistically significant if the 95% confidence interval for each estimate did not overlap. Confidence intervals were reported using either a range (e.g., 95% CI: 87.5, 91.5) or a plus/minus (e.g., 95% CI: +/- 2.0).

Only relative statements about differences between RHS estimates and those of the general Canadian population are made in the present report. Statistical comparisons between RHS estimates and Canadian population estimates were largely not assessed because confidence intervals for the latter were not readily available.

A multi-stage review process was under-taken for each chapter:

- First draft
- First internal technical review
- Peer review by two other chapter writers
- Second draft
- Second internal technical review & update
- Internal content review & update
- Internal copy-edit
- External copy-edit
- Final draft culturally reviewed by First Nations internal panel & updated
- Final draft

The First Nations cultural framework implemented in RHS 2002/03 was again utilized to help guide the interpretation of statistical results and organize the findings.

Individual chapter writers were responsible for providing and verifying sources for any information included in the chapter besides that provided by the FNIGC (i.e., information on data collection, question wording, statistical output).

¹ <http://www-01.ibm.com/software/analytics/spss/products/statistics/complex-samples/>

The Health and Well-Being of First Nations Adults



The RHS adult questionnaire is comprised of data from individuals aged 18 years and older. Data collection was conducted between June 2008 and November 2010 in a targeted 250 First Nations communities across Canada. All individuals that took part in the survey were randomly selected using locally updated band membership lists. The adult survey was completed via self-report with a median completion time of 46 minutes. All survey data were collected on mobile laptops using Computer Assisted Personal Interviewing software (CAPI).

A total of 11,043 First Nations adults across 216 communities were part of the RHS adult results.

Adults

Chapter 1

Demographics and Migration

EXECUTIVE SUMMARY

This chapter provides an overview of the demographic, economic, and migration patterns of First Nations adults, aged 18 or older currently living in First Nations on reserve and in northern First Nation communities. Specifically, an analysis is made of the education, employment, personal and household income levels, and migration patterns of First Nations adults living in First Nations communities. The variation of these characteristics across gender and age groups is examined. Additionally, using data from the 2006 Census of Canada and the 2006 Aboriginal Peoples Survey, we provide a comparative analysis of adults in the general Canadian adult population and First Nations adults who do not live in First Nations communities. The findings revealed that First Nations adults living in First Nations communities were younger than the general Canadian adult population, with 29.2% of First Nations adults being under 30 years old and 13% being 60 years or older. Regarding economic characteristics, First Nations adults who were not living in First Nations communities appeared to be faring better in education, employment, and personal and household income levels. Approximately 58% of First Nations adults living in First Nations communities earned less than \$20,000 per year, compared to the 20% of First Nations adults who were not living in First Nations communities and who earned a similar amount. Approximately 60% of First Nations adults reported that they have lived outside of their First Nations community. More than 50% of First Nations adults who had lived away from their community at some point reported employment or education as reasons for moving away from their First Nations communities. The implications of these findings are discussed.

KEY FINDINGS

- Approximately 30% (29.2%, 95% CI [± 1.4]) of First Nations adults are under the age of 30, while 13.0% (95% CI [± 0.5]) are 60 years or older.
- 28.7% of First Nations adult females are 18 to 29 years old, while 29.7% of First Nations adult males are 18 to 29 years old; 13.7% of First Nations adult females are 60 years or older, while 12.1% of First Nations adult males are 60 years or older (95% CIs [± 2.0]), [± 2.0], [± 0.6], and [± 0.7], respectively).
- Approximately forty percent (39.9%, 95% CI [± 1.9]) of First Nations adults reported having less than a high school education.
- Just under half (47.2%, 95% CI [± 2.0]) of First Nations adults living in First Nations communities were working for pay (wages, salary, or self-employed) at the time of the survey.
- Of all First Nations adults, 40.4% reported that they struggled at least a few times with food; 34.8% struggled with transportation, 32.2% struggled with utilities, 26.2% struggled with clothing, 16.6% struggled with child care, and struggled 16.0% with shelter..
- 59.2% (95% CI: [± 1.9]) of First Nations adults reported having lived outside of their First Nations community at some point in their lives. Of these adults, 74.6% reported being away from their community for more than one year and 37.6% (95% CI [± 2.2]) reporting living away from their community for more than five years.
- Among First Nations adults who had lived outside of their First Nations community, almost one-quarter (23.0%) of those aged 18 to 29 years reported having moved two or more times in the 12 months prior to the survey, compared to 9.2% aged 30 to 59 and 5.4% aged 60 or older.
- Among those who indicated living away from their community/reserve, employment was the most frequently reported reason for moving among First Nations males (36.3%), while for females it was education (31.2%, 95% CIs [± 2.6] and [± 2.4], respectively).

INTRODUCTION

This chapter provides a picture of the lives of First Nations adults living on reserve or in northern First Nations communities. The picture is developed by providing a description of key demographic, socio-economic, and migration characteristics, many of which are key social determinants of health (Bridgeworks Consulting, 2007; Raphael, 2008). In particular, attention is paid to key social determinants of health, including age, education, employment, personal and household income levels, and migration patterns. In doing so, this chapter provides important information on the social and economic resources available to First Nations adults.

METHODS

While the First Nations Regional Health Survey (RHS) 2008/10 is the main source of data for this chapter, two other data sources are used to compare First Nations adults living in First Nations communities with the general Canadian population and with First Nations adults who do not live in First Nations communities. Data from the 2006 Census are used to provide comparisons with the general Canadian population. Education achievement is grouped into five categories: less than high school, high school (including some college/university training), post-secondary education (including college certificate/diploma and university degree), graduate degree (professional degree, Master's, Ph.D.), and 'other' (including those individuals who did not complete high school but had some relevant training).

The public use microdata file of the 2006 Aboriginal Peoples Survey (APS) is used to provide a comparative picture of First Nations adults aged 15 or older who do not live in First Nations communities. The 2006 APS is a national survey of Aboriginal people living off-reserve who self-identified as Aboriginal or reported Aboriginal ancestry (Statistics Canada, 2009). The 2006 APS data was collected between the fall of 2006 and the spring of 2007 from roughly 60,000 participants across the country, and provides a profile of social and economic conditions (Statistics Canada, 2009). A subgroup of the population, comprising those who indicated they are Treaty or Registered Indians, was selected for analysis. Population weights adjusted for the subsample were used in all analyses of the 2006 APS.

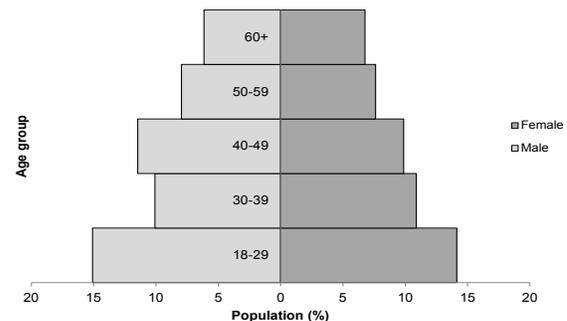
RESULTS

Demographics

Data from RHS 2008/10 demonstrate that the First

Nations adult population aged 18 or older is young (see Figure 1.1). Approximately 30% (29.2%) of First Nations adults are younger than 30 years of age, while 13.0% are 60 or older (95% CIs [± 1.4] and [± 0.5], respectively). Among First Nations adults not living in First Nations communities, 44% are 15 to 34 years old, and 18% are 55 or older (Statistics Canada, 2006a). While approximately 32% of the general Canadian adult population aged 15 or older are younger than 34 years of age, 17% are 65 or older (Statistics Canada, 2006b). The differences observed between the population distributions of First Nations adults living in First Nations communities, First Nations adults not living in First Nations communities, and the general Canadian adult population most likely result from a combination of factors such as fertility, morbidity, and mortality rates (Adelson, 2005; Loppie Reading & Wien, 2005). The RHS 2008/10 data also demonstrate a slightly older female population: 28.7% of First Nations adult females are 18 to 29 years old, while 29.7% of First Nations adult males are 18 to 29 years old, and 13.7% of First Nations adult females are 60 years of age or older, while 12.1% of First Nations adult males are 60 years of age or older (95% CIs [± 2.0], [± 2.0], [± 0.6], and [± 0.7], respectively).

Figure 1.1. Population Pyramid for First Nations Adults Living in First Nations Communities



Education

Slightly less than forty percent (39.9%, 95% CI [± 1.9]) of First Nations adults reported having less than a high school education (see Table 1.2). Age and gender differences were observed among First Nations adults' levels of educational achievement (see Table 1.1). While younger First Nations adults (aged 18 to 29) had a higher proportion of high-school-only graduates, older First Nations adults (aged 30 to 59 years and 60 and above) had a higher proportion of post-secondary graduates. While the proportions of First Nations male and female high school graduates are the same, more females completed post-secondary education.

Table 1.1. Educational Achievement of First Nations Adults, by Age and Gender (n = 10,803)

	Gender		Age		
	Male	Female	18–29	30–59	60+
Less than high school	42.9	36.8	48.0	32.1	56.9
High school graduate	34.9	29.7	37.8	32.4	19.7
Post-secondary	17.7	27.2	10.8	29.2	17.9
Graduate	1.1	1.5	0.5	1.7	1.2
Other*	3.3	4.8	2.9	4.6	4.3

There were also differences in the educational achievement of First Nations adults living in First Nations communities compared both to the general Canadian population and to First Nations adults who did not live in First Nations communities (see Table 1.2). Slightly more than half of First Nations adults living in First Nations communities achieved at least a high school education (56.0%, 95% CI [± 1.8]). This is lower than the percentage of First Nations high school graduates who do not live in First Nations communities (over 60%). By comparison, more than three-quarters (approximately 76%) of the general Canadian population achieved at least a high school education (Statistics Canada, 2006a; Statistics Canada, 2006c). Additionally, only 23.7% (95% CI [± 1.4]) of First Nations adults living in First Nations communities were post-secondary graduates, compared to 40% of the general Canadian population.

Table 1.2. Educational Achievement of First Nations Adults (n = 10,812) Compared to the General Canadian Population

Highest level of schooling	RHS 2008/10 First Nations adults (18+ years old)		Canadian population 2006 (15+ years old)
	%	CI	
Less than high school	39.9	[± 1.8]	24
High school graduate	32.3	[± 1.4]	36
Post-secondary	22.5	[± 1.4]	36
Graduate	1.3	[± 0.2]	4
Other*	4.0	[± 0.7]	---

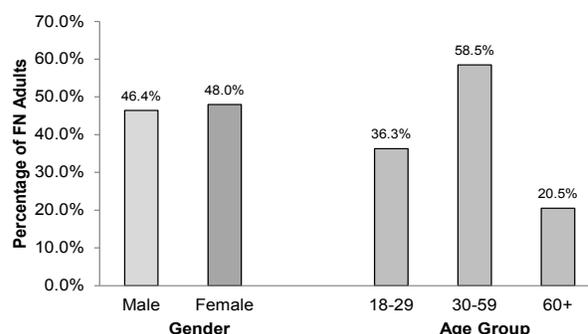
*Individuals who did not complete high school but had some relevant training or upgrading

Employment

Just under half (47.2%, 95% CI [± 2.0]) of First Nations adults living in First Nations communities were working for pay (wages, salary, or self-employed) at the time of the survey. Comparatively, over 60% of the general Canadian population aged 15 years or older and 59%

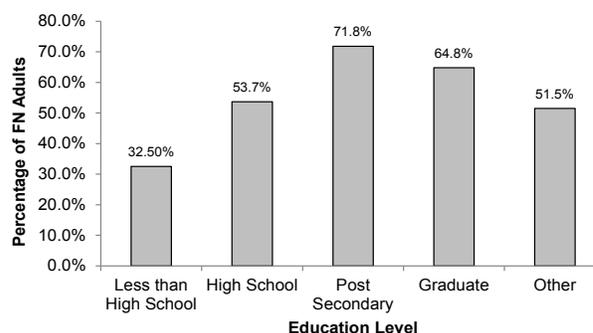
of First Nations aged 15 or older who did not live in First Nations communities worked for pay (Statistics Canada, 2006a; Statistics Canada, 2006d). No gender difference was observed in proportion of females and males who currently work for pay (48.0% vs. 46.4%, 95% CIs [± 2.2] and [± 2.5], respectively; see Figure 1.2).

Figure 1.2. Percentage of First Nations Adults Working for Pay, by Gender and Age (n = 10,866)



As expected, the age group 30 to 59 years contained the highest proportion of those working for pay. Additionally, there appeared to be an association between educational achievement and working for pay. More First Nations adults with a higher level of education (post-secondary or graduate) reported working for pay compared to those who had achieved lower levels of education (see Figure 1.3).

Figure 1.3. Percentage of First Nations Adults Working for Pay, by Educational Achievement (n = 10,678)



Personal and Household Income

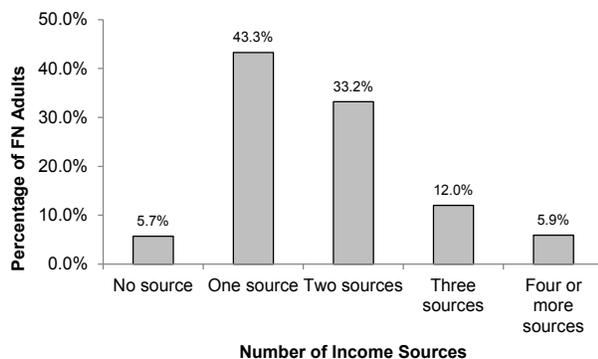
Personal income levels among First Nations adults have remained fairly stable between RHS 2002/03 to RHS 2008/10. Over the same period, the percentage of First Nations adults reporting household incomes of less than \$10,000 per year increased, and the percentage of First Nations adults reporting household incomes between \$30,000 and \$49,999 per year decreased (see Table 1.3). A large proportion (43.3%) of First Nations adults relied on one source of household

income. Just under one-fifth (17.9%) reported relying on three or more income sources (see Figure 1.4).

Table 1.3. Personal and Household Income Levels of First Nations Adults in RHS 2002/03 and RHS 2008/10

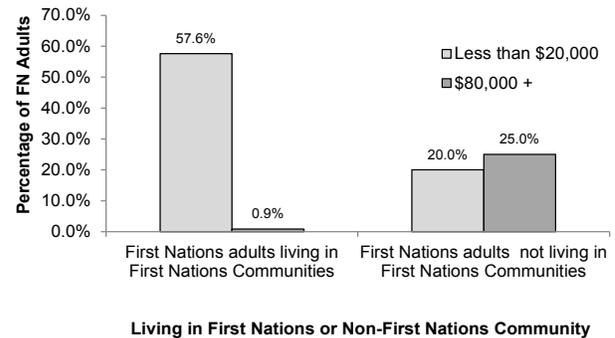
Income levels	RHS 2002/03	RHS 2008/10	RHS 2002/03	RHS 2008/10
	Personal Income	Personal Income	Household Income	Household Income
< \$10,000 or less	33.2	32.6	11.7	16.8
\$10,000–\$14,999	16.4	14.0	10.7	10.1
\$15,000–\$19,999	10.2	11.0	8.3	10.1
\$20,000–\$29,999	19.7	20.2	19.5	20.0
\$30,000–\$49,999	15.5	15.9	25.6	20.9
\$50,000–\$79,999	4.4	5.5	18.2	15.7
\$80,000 plus	0.6	0.9	6.0	6.4

Figure 1.4. Total Number of Personal Income Sources (n = 10,583)



The proportion of First Nations adults relying on only one income source increased between RHS 2002/03 and RHS 2008/10. There appears to be a disparity in personal income level between those First Nations adults who live in First Nations communities and those who do not. In RHS 2008/10, approximately 57.6% of First Nations adults living in First Nations communities earned less than \$20,000 per year, compared to 20% of First Nations adults who did not live in First Nations communities (see Figure 1.5). Additionally, 0.9% of First Nations adults living in First Nations communities earned \$80,000 or more per year, compared to 25% of First Nations adults not living in First Nations communities.

Figure 1.5. Difference in Personal Incomes between First Nations Adults Living in and Not Living in First Nations Communities



A large percentage of First Nations adults (43.3%) reported being unable to meet one or more basic living requirements [food, shelter, utilities, clothing, transportation, or childcare] at least a few times in the past 12 months. Overall a higher proportion of females than males struggled at least a few times in the past year to meet basic needs (59.7% vs. 53.9%, 95% CIs [± 2.2] and [± 2.2], respectively). In addition, a higher proportion of adults 18-29 years (62.6% [± 2.7]) and adults 30-59 years (57.5% [± 2.2]) struggled to meet basic needs at least a few times a year, compared to adults 60+ years (40.8% [± 2.9]).

Of all First Nations adults, 40.4% reported that they struggled at least a few times with food; 34.8% struggled with transportation, 32.2% struggled with utilities, 26.2% struggled with clothing, 16.6% struggled with childcare, and struggled 16.0% with shelter. Gender and age differences in individual basic needs are reported in Table 1.4.

Table 1.4. First Nations Adults in First Nations Communities Reporting that they Struggle to Meet Basic Needs, by Age and Gender

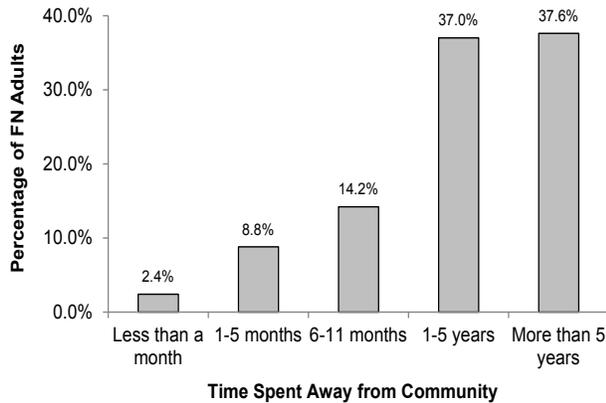
Basic need	Age			Gender	
	18–29	30–59	60+	Male	Female
Food	42.9	41.8	28.8	38.8	42.0
Shelter	16.5	17.0	10.2	14.9	17.0
Utilities	28.5	35.5	25.8	30.6	33.8
Clothing	27.0	28.1	16.1	24.6	26.5
Transportation	40.9	34.6	22.2	34.1	35.5
Child care	20.8	16.4	4.8	14.3	18.8

Migration

Over the past 50 years, Canada has witnessed an unprecedented growth in the urban First Nations population. In the early 1950s, less than 7% of the First Nations population lived in urban areas; by the early

1960s, this figure had increased to 13% (Kalbach, 1987). The 2006 Census of Canada revealed that 54% of the First Nations population lived in an urban area (Statistics Canada, 2008). The RHS 2008/10 demonstrated that 59.2% (95% CI [± 1.9]) of First Nations adults at some point in time in their lives had lived outside their First Nations community. Three-quarters of these adults (74.6%) reported being away from their community for one year or more and 37.6% (95% CI [± 2.2]) reporting living away for more than five years (see Figure 1.6).

Figure 1.6. Longest Period Away from Community, (Among Those Who Have Lived Outside of their Community) (n = 5,890)

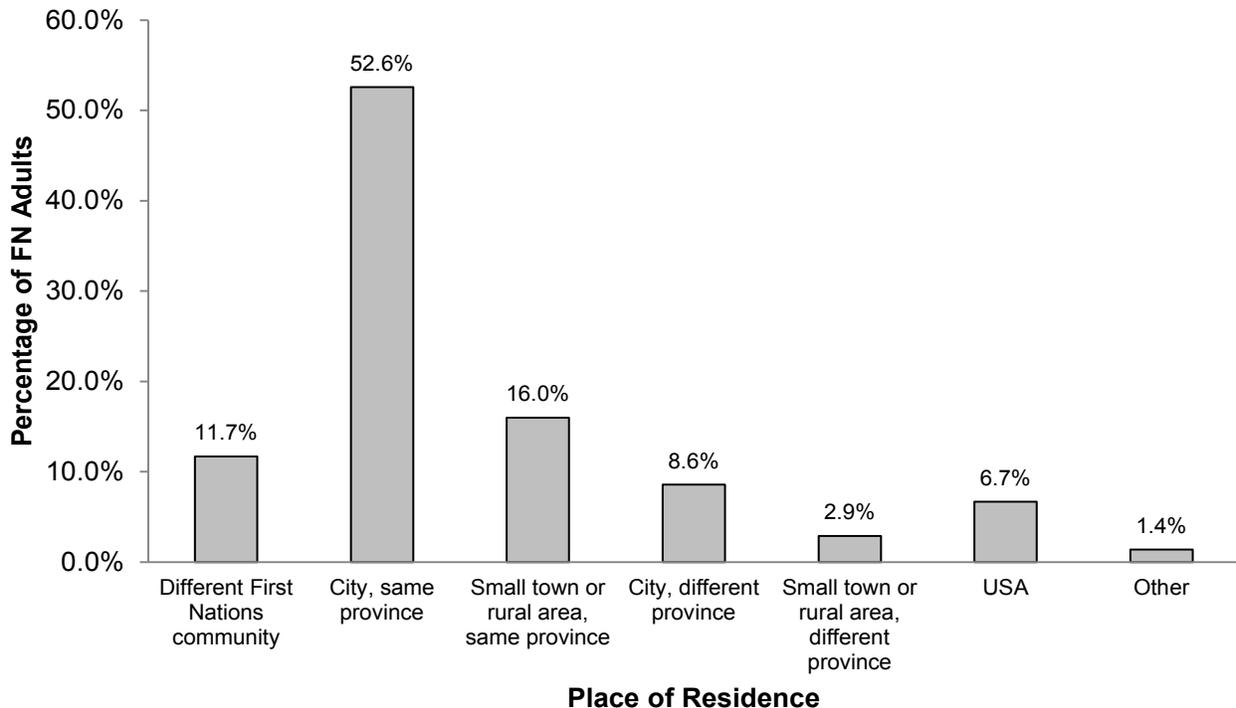


Of those indicating that they have lived away from their First Nations community, the majority indicated that they had not left their community in the past year (67.9%, 95% CI [± 2.0]). In contrast, 19.2% (95% CI [± 1.7]) moved in and out of their community once and 12.9% moved two or more times.

Of those indicating that they have lived away from their First Nations community, no differences in the frequency of moving into and out of a First Nations community were observed among gender and educational achievement. However, differences in frequency of leaving the community in the past 12 months did differ by age group. A higher proportion of young adults aged 18-29 reporting leaving their community once (32.1%) or more than once (23.0%), compared to adults 30-59 years (14.5% and 9.3%, respectively) and adults 60+ years (9.6% and 5.4%, respectively).

Among adults who have lived outside of their community, approximately half moved to a city within the same province (52.6%, see Figure 1.7).

Figure 1.7. Place where First Nations Adults Spent the Majority of their Time While Away from their First Nations Community (Among Those Who Have Lived Outside of their Community), (n = 6,018)



Regarding reasons for moving, 54.0% of First Nations adults who had lived outside of their community/reserve reported moving for employment or education.

While the proportion of First Nations males and female who moved from their community is the same, their reasons for moving differ. A higher proportion of First Nations males moved for employment reasons (36.3% vs. 15.4%), and a higher proportion of First Nations females left for education reasons (31.2% vs. 25.0%; see Table 1.5).

In addition, a higher proportion of females left their community/reserve for housing reasons (11.9% vs. 6.6%) and due to employment of spouse/partner (3.9% vs. 1.6%), compared to males.

Age differences were also observed in reasons for living away from one's community/reserve. The proportion of those leaving for employment reasons increased with age, and the proportion of those leaving for education reasons decreased with age. A higher proportion of adults less than 60 years left their community for relationship reasons, and a lower proportion left their community because of employment for a spouse/partner, compared to those 60 years and up. No other statistically significant age differences were observed.

Table 1.5. Main Reason First Nations Adults Moved Away from their First Nations Community (Among Those Who Have Lived Outside of their Community), by Age and Gender (n = 5,978)

Main Reason	% of First Nations adults				
	Gender		Age		
	M	F	18–29	30–59	60+
Employment	36.3	15.4	16.7	26.9	46.8
Education	25.0	31.2	35.7	27.6	9.1
Relationship	13.3	16.7	15.2	15.8	9.6
Housing	6.6	11.9	8.3	10.1	6.5
Employment of spouse or partner	1.6	4.0	1.4	2.7	7.0
Marital or domestic problems	2.4	3.6	3.1	3.0	2.2
Support for Disability	0.8	0.5	s	0.4	0.5
Other medical needs	1.0	1.2	0.8	1.1	1.8
Other	13.0	15.7	17.8	12.3	16.3

s= suppressed due to low cell n.

Reasons for returning to First Nations communities are quite different from the factors underlying movement from communities. In RHS 2008/10, the majority of First Nations adults reported returning home for family-related

reasons (59.9%) and cultural reasons. In particular, 31.1% returned home because of a strong connection to their community or home, while approximately 17% returned home because the culture is familiar and to expose their children to First Nations culture (see Table 1.6).

Table 1.6. Reasons First Nations Adults Returned to their First Nations Community (Among Those Who Have Lived Outside of their Community) (n = 6,057)

Reason for returning	%	[95% CI]
Family	59.9	[±2.0]
Connection to community or home	31.1	[±1.8]
Job opportunities	21.0	[±1.7]
Housing became available	16.4	[±1.3]
Familiar culture	9.3	[±1.0]
Exposure of children to culture	7.5	[±0.9]
Other	10.4	[±1.1]

A higher proportion of females reported family, housing, and exposure of children to culture as reasons for returning to their community, compared to males (see Table 1.7).

Table 1.7. Reasons First Nations Adults Returned to their First Nations Community (Among Those Who Have Lived Outside of their Community), by Age and Gender, (n = 5,978)

Reasons	% of First Nations adults				
	Gender		Age		
	M	F	18–29	30–59	60+
Connection to family	57.0	62.8	69.6	56.4	52.9
Connection to community/home	32.5	29.8	26.7	31.9	38.8
Exposure of children to culture	5.3	9.8	6.2	8.3	6.2
Housing became available	13.9	18.9	11.8	17.8	20.7
Job opportunities	23.2	18.7	16.4	24.1	16.1
Familiar culture	8.4	10.2	6.3	10.3	11.5
Other	9.7	11.2	11.0	9.8	11.9

Age differences were also observed in reasons for returning to one's community/reserve. A higher proportion of adults 18-29 years reporting returning to their community for family reasons, compared to those 30-59 years and those 60+ years. In contrast, the proportion of those returning for a greater connection to community and home, newly available housing, and familiar culture increased with age. Finally, adults 30-59 years were the most likely to return to their community for employment reasons (see Table 1.7).

More than half (54.9%) of First Nations adults who had lived outside of their First Nations community reported

that while they were living outside their First Nations community they wanted to receive services such as health and education from their First Nations community, and 44.7% reported that they voted in their First Nations elections (95% CIs [± 2.0] and [± 3.1], respectively).

DISCUSSION

The differences in employment, education and income among First Nations adults living in First Nations communities and the general Canadian population remain large. In addition, First Nations adults not living in First Nations communities appeared to be doing better in terms of educational achievement, employment levels, and income. This may help to explain some of the reasons First Nations on reserve choose to leave their community; the motivations of First Nations adults for migration from First Nations communities to urban Canada are primarily the prospect of better and more numerous educational and income opportunities.

Gender differences were observed in reasons for leaving one's community. A higher proportion of First Nations men reported employment as the main reason for leaving, and First Nations women reported education as the most important reason for moving.

Many First Nations adults returned to their First Nations community. First Nations adults who reported most often cited family and cultural reasons for their return. In addition, those who had lived away from First Nations communities reported that they still wanted to receive the services their First Nations communities offered while away.

Results suggest that education and employment opportunities must be increased within First Nations communities. The increase in opportunities may increase retention within First Nations communities – allowing adult to keep their connection with family, community and cultural traditions

CONCLUSIONS

The demographic, social, economic, and migration data of this chapter demonstrate three main points. First, there is some evidence for convergence in the demographic, education, and economic status of First Nations adults living on reserve or in northern First Nations communities, compared to both First Nations not living in their First Nations communities and the general Canadian population. Second, the data highlight the differences that continue to place First Nations adults, especially those living in First Nations communities, at a disadvantage in comparison to the general Canadian

population. The inequalities in education, employment, and personal and household income continue, and they must be addressed. Finally, the role migration plays in the lives of First Nations adults demonstrates that there are educational and employment opportunities that will continue to attract First Nations adults to urban areas. Despite this, there is also evidence that First Nations communities remain important to First Nations adults, in particular as their familial and cultural anchors. Strengthening familial and cultural links and improving services in First Nations communities will benefit both First Nations adults living in First Nations communities and those who choose to move away.

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Chapter 2

Employment and Income

EXECUTIVE SUMMARY

Satisfactory employment and income are important elements in achieving individual well-being; similarly, a healthy economy plays an important part in achieving a strong and healthy community. Unfortunately, these elements are often lacking within First Nations on reserve or in northern First Nation communities. The unemployment rate (i.e., percent of unemployed persons within the total labor force) among First Nations adults (31.2%) remains well above the Canadian average. Almost half of younger First Nations adults aged 18 to 29 years are unemployed (48.6%). Approximately 58% of First Nations adults reported a total annual income of less than \$20,000. Results from the First Nations Regional Health Survey (RHS) 2008/10 reveal that much work must be done with regard to the availability of employment with sufficient pay in order for First Nations individuals living in First Nations communities to achieve a healthier, self-sufficient, and self-determined way of life.

KEY FINDINGS

- Of the total adult population, 47.2% reported being currently employed, 21.4% reported being currently unemployed but seeking employment, 26.3% reported being unemployed and not seeking employment, and 5.1% reported being unemployed but did not provide information about seeking employment.
- No difference was observed in employment rate between 2002/03 (48.8%) and RHS 2008/10 (47.2%).
- The labor force participation rate is the number of employed and unemployed adults (excluding those not looking for work) as a percentage of the total adult population. In RHS 2008/10 the labor force participation rate was 68.6%. The labor force participation rate was significantly higher among males (72.9%) compared to females (64.2%).
- Approximately one-quarter (26.2%) of the total adult population indicated that they were currently not working for pay and were not currently looking for work. This percentage was higher among females (29.7%) compared to males (22.9%). These adults were asked to indicate their current situation: 22.1% reported being in poor health or disabled, 22.4% reported being retired and 22.7% reported being stay-at-home parents.
- The unemployment rate (i.e., percent of unemployed persons within the total labor force among First Nations adults (31.2%) remains well above the Canadian average. The unemployment rate was higher among males (36.3%) than among females (25.3%), and decreased with age: 18-29 years (48.6%), 30-39 years (28.2%), 40-49 years (25.1%), 50-59 years (17.3%), and 60+ years (16.2%).
- The majority of employed First Nations adults reported being employed within their own communities (82.4%). Approximately one-in-ten employed adults 10.8% worked in non-First Nations communities.
- 58% of First Nations adults reported a total annual personal income of less than \$20,000 in RHS 2008/10 and in RHS 2002/03.
- A higher percentage of First Nations adults in the youngest (18-29 years) and oldest age

INTRODUCTION

A comprehensive report on the health and well-being of the First Nations population living on reserve or in northern First Nations communities must contain an assessment of economic variables such as employment and income, since the ability to make a living and the ways of making it are important contributors to the health of First Nations adults. Most First Nations people's conceptions of living in a good way include not only having access to the means of ensuring survival, but also being able to have a useful and productive life, having control over the means of one's livelihood, and living interdependently with the environment and with all of creation (Dumont, 2005). Research reveals that imbalance, with respect to poverty and inequalities, strongly contributes to the poor health and well-being observed among First Nations individuals, families, and communities (Loppie Reading & Wien, 2008).

First Nations culture stresses the interconnectedness of all things. Contemporary research from both First Nations and Western vantage points supports the idea that a broad range of interrelated factors contribute to economic inequalities. That is, the current economic state is not simply the product of economic or technical factors, such as access to resources, a well-trained labour force, up-to-date technology, or geographic location—although all of these factors help; rather, other broad factors all contribute. Research has revealed that leadership, the capacity to make and implement decisions, the development of appropriate institutions, and the role of culture are also vitally important in strengthening the economic bases of indigenous communities (Cornell & Kalt, 1992; Royal Commission on Aboriginal Peoples, 1996; Standing Senate Committee on Aboriginal Peoples, 2007; The Indian Tribes of Manitoba, 1971; Wien, 2006).

An analysis of national Census and other data over the past 40 years revealed the following findings on First Nations economic variables (Make Poverty History Committee, 2009):

- The socio-economic position of the First Nations population has improved over the past 40 years. Indicators of employment, income, or education reveal movement in a positive direction.
- The rest of the Canadian population is not standing still. The rate of positive change for the Canadian population on some, but not all, indicators has been greater than it has been for First Nations, especially those living in First Nations communities. As a result,

the inequality gap has widened rather than narrowed.

- There are some signs that the economy of First Nations communities is especially vulnerable to the impact of recessions. Unemployment rates increased markedly in the 1980s when Canada experienced a significant recession. Having businesses that are less well established and a younger, less educated, and less protected labour force contributes to this vulnerability.
- Younger First Nations people face especially challenging times with very high unemployment rates and a very high probability of having low incomes. High levels of poverty are also found among urban First Nations populations.
- There has been impressive growth in the number of businesses owned by First Nations, whether by individuals or by communities. The same can be said for the development of institutions that support the process of economic development, whether in the form of lending organizations (capital corporations), community economic development corporations, organizations representing economic development officers, or those providing business advisory services.

The above findings reveal that First Nations communities have a unique set of economic challenges to overcome. This chapter presents the most recent data on employment and income among First Nations adults aged 18 and older living in First Nations communities across Canada.

METHODS

The RHS 2008/10 asked several questions about employment and income characteristics. With respect to employment, participants were asked whether they were currently employed (i.e., working for wages or a salary, or self-employed) at the time of the survey (yes/no). Employed persons were asked where their workplace is located: in their own First Nations community, in another First Nations community, in a non-First Nations community, or elsewhere. Unemployed persons were asked whether they were currently looking for work. Unemployed persons who were not looking for work were asked to choose from a list of items that best described their situation: poor health or disability, seasonal worker, retired, stay-at-home parent, student, no longer working gave up, or other.

The present chapter uses Statistics Canada definitions of

employment rate, unemployed persons, unemployment rate, labor force, and labor force participation rate (Statistics Canada, 2010). The employment rate is the number of employed persons as a percentage of the total adult population. Unemployed persons are defined as those who, when surveyed, were without work and/or are looking for work. Unemployment rate is the number of unemployed persons expressed as a percentage of the total labor force (employed + unemployed [excluding those not looking for work]). The labor force participation rate is the number of employed and unemployed adults (excluding those not looking for work) as a percentage of the total adult population¹.

Regarding income, participants were asked to categorize their total personal income, before deductions, for the year prior to the survey (ending December 31, 2007). Fourteen categories ranging from “no income” or “income loss” to “80,000+” were offered. Participants were also asked to check off the source of their income, for which there were 16 categories, including paid employment, social assistance, and child tax benefit. Participants could choose more than one category. Categories for sources of personal income were then regrouped into three broader categories: income from government, including employment insurance, social assistance, old age security, and child tax benefits; paid employment, including wages, salaries, or earnings from self-employment; and other sources, including royalties, land claims payments, certain kinds of pensions, child support payments, and education or training allowances.

Throughout the analysis, the results were examined by gender and age.

To assess change since the previous RHS, comparisons were made between results from the RHS 2008/10 and those from RHS 2002/03 (First Nations Information Governance Committee, 2005). Comparisons with the general Canadian population were also explored.

RESULTS

Employment

Employment rate

The employment rate is the number of employed persons as a percentage of the total adult population. Slightly fewer than half (47.2%) of all First Nations adults reported that they were currently employed/working for pay. The employment rates in RHS 2008/10 and

RHS 2002/03 (48.8%) did not differ statistically. No gender differences in employment rate were observed.

Figure 2.1. Employment Rate, by Age

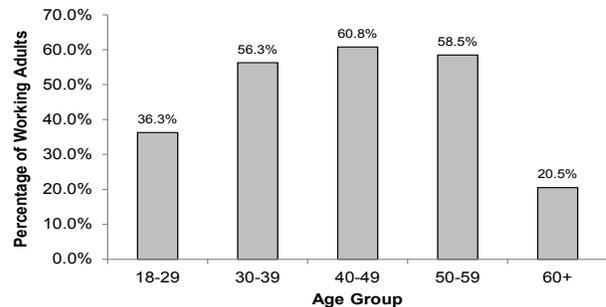


Figure 2.1 presents employment rate by age group. Only one-third (36.3%, 95% CI [± 3.1]) of First Nations adults aged 18 to 29 years reported that they were employed/currently working for pay. The low rates of employment may be explained by many things, such as unavailability of jobs, the demands of going to school, and, for some, raising young families.

Rate of employment increased to approximately 60% for those aged 30 to 59 years. One in five adults aged 60 years or above were still employed (20.5%). Rates of employment by age group were similar to those observed in RHS 2002/03.

Labor force participation rate

The labor force participation rate is the number of employed and unemployed adults (excluding those not looking for work) as a percentage of the total adult population.

In RHS 2008/10 the labor force participation rate was 68.6%. The labor force participation rate was significantly higher among males (72.9%, 95% CI [71.0, 74.7]) compared to females (64.2%, 95% CI [62.3, 66.0]).

Unemployed persons

Unemployed persons are defined as those who, during the time of the 2008/10 survey were without work. More than half of First Nations adults reported being currently without work (52.8%). Those who reported being currently without work were organized into 3 categories: 21.4% reported being currently unemployed but seeking employment, 26.3% reported being unemployed and not seeking employment, and 5.1% reported being unemployed but did not provide information about seeking employment.

¹ The Statistics Canada labor force definition includes those 15 years and older (Statistics Canada, 2010).

Unemployed persons not looking for employment

As mentioned above, approximately one-quarter (26.2%) of the total adult population indicated that they were currently not working for pay and were not currently looking for work. This percentage was higher among females (29.7%) compared to males (22.9%).

These adults were asked to indicate their current situation: 22.1% reported being in poor health or disabled, 22.4% reported being retired and 22.7% reported being stay-at-home parents (the remaining responses are indicated in Table 2.1).

Table 2.1. Current Situation among Adults Not Working and Not Currently Looking for Work, by gender (n = 3,462)

Situation	Total	Males	Females
Poor health or disability	22.1	25.8	19.2
Seasonal worker	4.6	8.2 ^E	1.7 ^E
Retired	22.4	27.3	18.6
Stay-at-home parent	22.7	6.5	35.3
Student	11.2	9.6	12.4
Gave up looking for work	7.1	11.0	4.1
Other	10.0	11.6 ^E	8.7

^E High sampling variability; use figure with caution.

A significantly higher proportion of females indicated their current situation as being in poor health or disabled and being a stay at home parent, compared to males. In contrast, males were more likely to describe their current situation as being a seasonal worker, being retired, and having given up looking for work..

Table 2.2. Current Situation of Those Not Working Nor Looking for Work, by Age (n = 3,461)

Situation	18–29 years	30–39 years	40–49 years	50–59 years	60+ years
Poor health or disability	6.7 ^E	11.0 ^E	31.7	51.8	21.7
Seasonal worker	3.9 ^E	4.6 ^E	14.4 ^E	5.4 ^E	0.6 ^E
Retired	0.0	0.0	^F	8.2 ^E	67.1
Stay-at-home parent	36.5	52.4	19.8	12.6	3.7 ^E
Student	32.9	13.4	4.1 ^E	^F	^F
Gave up looking for work	10.2 ^E	6.4 ^E	12.9 ^E	8.8 ^E	1.5 ^E
Other	9.8 ^E	12.3 ^E	^F	12.6 ^E	5.3

^E High sampling variability; use figure with caution.
^F suppressed due to low cell count (n < 5) or very high sampling variability (CV > .333)

Age differences were also evident in the reasons unemployed First Nations adults gave for not looking for employment (see Table 2.2). Poor health and disability appeared to have an increasingly greater impact on seeking work as adults aged, up until retirement. Naturally, stay-at-home parents were most commonly found among those aged 18 to 39 years, and student status was most commonly found among those aged 18 to 29 years.

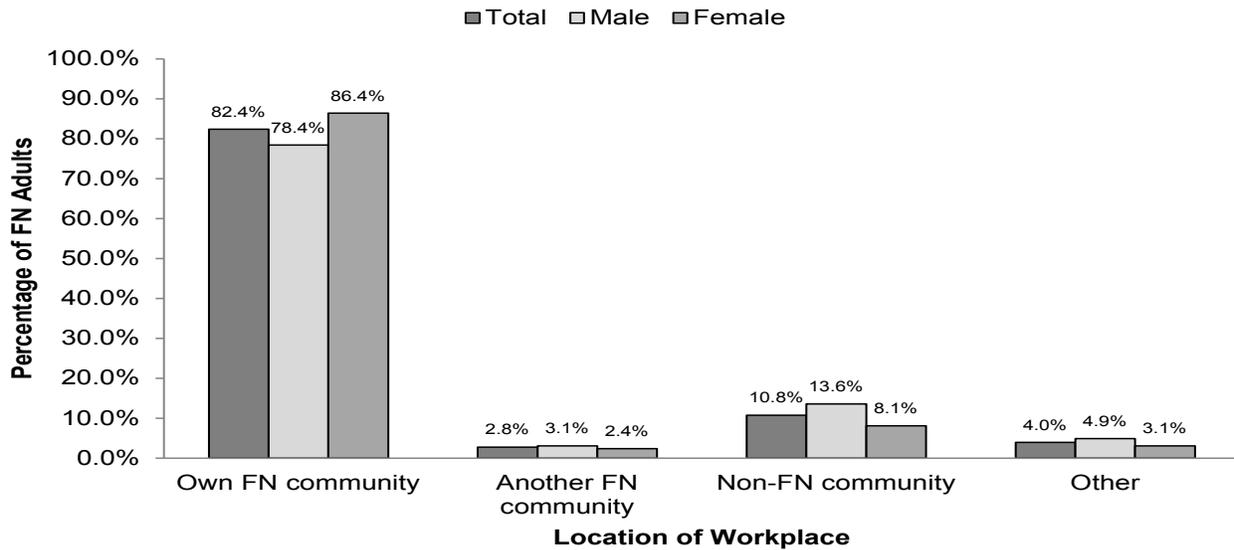
Unemployment rate

Unemployment rate is the number of unemployed persons expressed as a percentage of the total labor force (employed + unemployed [excluding those not currently looking for work]). The unemployment rate among First Nations adults was 31.2%. The unemployment rate was higher among males (36.3%) than among females (25.3%), and decreased with age: 18-29 years (48.6%), 30-39 years (28.2%), 40-49 years (25.1%), 50-59 years (17.3%), and 60+ years (16.2%).

Location of employment

The majority of employed First Nations adults reported being employed within their own communities (82.4%). Approximately one-in-ten employed adults 10.8% work in non-First Nations communities (see Figure 2.2). A significantly higher proportion of females (than males) reported working in their own First Nations community, whereas a significantly higher proportion of males (than females) reported working in a non-First Nations community. No age differences in location of employment were observed

Figure 2.2. Location of Workplace among Employed First Nations Adults in First Nations Communities, by Gender



Income

More than half of First Nations adults reported an income below \$20,000 (57.6%, 95% CI [55.4, 59.8]) (see Table 2.3). This was comparable to the percentage observed in RHS 2002/03 (59.8%). No gender differences were observed. A higher percentage of First Nations adults in the youngest and oldest age groups fell into the lower income ranges or the no-income category, compared to those aged 30 to 59 years (see Table 2.4).

Table 2.3. Percent of Adults in Personal Income Categories, by Gender

Income range	Total (%)	Males (%)	Females (%)
Income loss	0.2 ^E	F	F
No income	10.1	10.0	10.1
\$1–\$4,999	10.3	10.2	10.5
\$5,000–\$9,999	12.0	12.8	11.1
\$10,000–\$14,999	14.0	13.5	14.6
\$15,000–\$19,999	11.0	11.5	10.6
\$20,000–\$24,999	11.7	11.2	12.2
\$25,000–\$29,999	8.5	7.6	9.4
\$30,000–\$39,999	9.8	9.4	10.2
\$40,000–\$49,999	6.1	5.9	6.3
\$50,000–\$59,999	2.9	3.1	2.7
\$60,000–\$69,999	1.6	1.9	1.2 ^E
\$70,000–\$79,999	1.0	1.3 ^E	0.6 ^E
\$80,000 and over	0.9 ^E	1.4 ^E	0.3 ^E

^E High sampling variability; use figure with caution.
^F Statistics suppressed due to low cell count (n < 5) or very high sampling variability (CV > .333)

Table 2.4. Percent of Adults in Personal Income Categories, by Age

Income range	18–29 years	30–59 years	60+ years
Income loss	F	F	F
No income	15.2	7.3	12.0
\$1–\$4,999	17.9	7.9	4.5
\$5,000–\$9,999	16.8	9.9	10.7
\$10,000–\$14,999	14.3	11.2	27.4
\$15,000–\$19,999	11.4	10.5	13.2
\$20,000–\$24,999	11.6	12.3	9.2
\$25,000–\$29,999	4.5	10.7	6.9
\$30,000–\$39,999	4.6	13.0	6.3
\$40,000–\$49,999	1.9 ^E	8.5	3.8
\$50,000–\$59,999	F	4.1	2.9 ^E
\$60,000–\$69,999	F	2.2	1.2 ^E
\$70,000–\$79,999	F	1.3 ^E	1.2 ^E
\$80,000 and over	F	1.1 ^E	F

^E High sampling variability; use figure with caution.
^F Statistics suppressed due to low cell count (n < 5) or very high sampling variability (CV > .333)

Sources of income

The most common sources of income were paid employment, social assistance, and child tax benefits (see Table 2.5).

Table 2.5. Percent of Adults in Source of Income Categories (more than one response possible)

Source of income*	%
Paid employment (wages or salary)	54.4
Earnings from self-employment	10.7
Employment insurance	12.8
Social assistance	33.9
Royalties, trusts, and land claims payments	4.9
Basic old age security	8.8
Benefits from Canada or Quebec pension plan	6.5
Guaranteed income supplement or spouse's allowance	3.0
Retirement, pensions, superannuation annuities	4.0
Veteran's pension	0.6
Child tax benefit	32.6
Child support or alimony	2.9
Worker's compensation	1.1 ^E
Disability allowance	5.3
Education or training allowance	9.9
Maternity/paternity leave	1.4

*Refers to any income from each source in year ending December 31, 2007. ^E High sampling variability; use figure with caution.

Compared to females, a significantly higher proportion of males received income from self-employment (7.8% vs. 13.4%), employment insurance (10.1% vs. 15.4%),

and disability allowance (3.8% vs. 6.6%). In contrast, compared to males, a significantly higher proportion of females received income from basic old age security (7.6% vs. 10.0%), guaranteed income supplement/spouse allowance (2.0% vs. 4.0%), child tax benefit (12.0% vs. 53.0%), child support/alimony (0.9% vs. 5.0%), and maternity/paternity leave (0.3%^E vs. 2.6%).

Income sources were grouped into government sources, paid employment, and other sources. Approximately two-thirds (66.0%) of First Nations adults had income from government sources; approximately half (52.5%) had income from paid employment; and one-sixth (15.8%) derived their income from other sources.

Figures 2.3 and 2.4 display gender and age differences in sources of income. The results revealed that a higher percentage of First Nations females than of males received income from government sources, while a higher percentage of males received income from paid employment. With respect to age differences, income from employment was most common among those 30 to 59 years. Income from government sources was especially common among those 60 or older, likely due to government pensions and social assistance.

Figure 2.3. Grouped Income Source, by Gender, 2007 (n = 11,043)

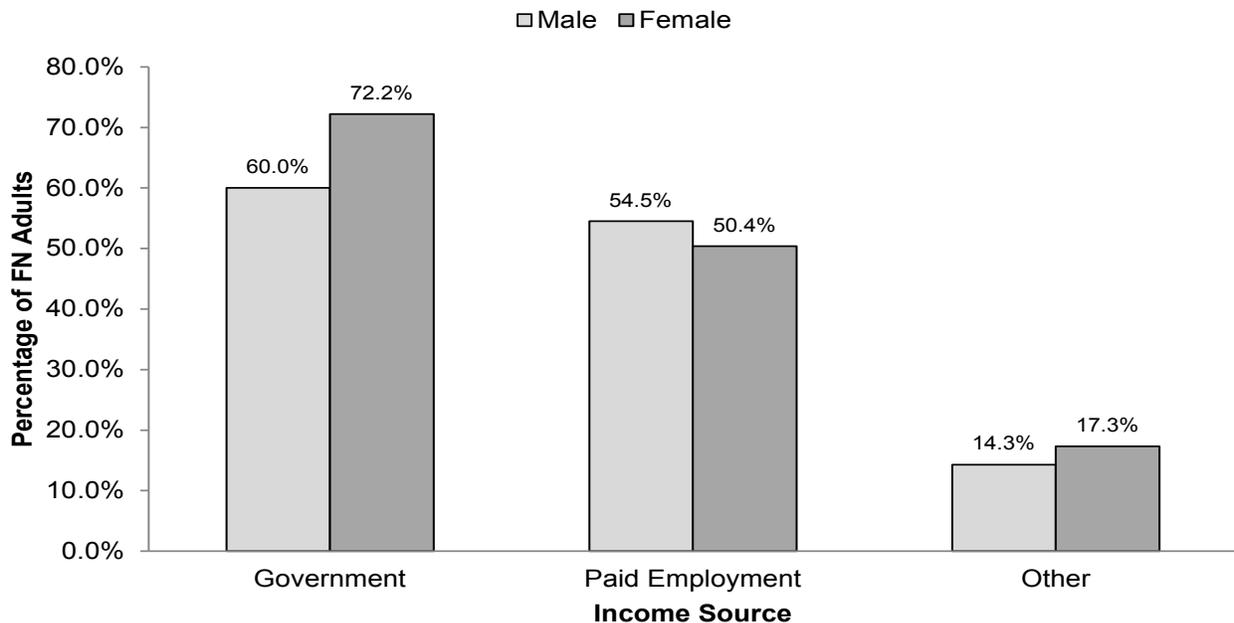
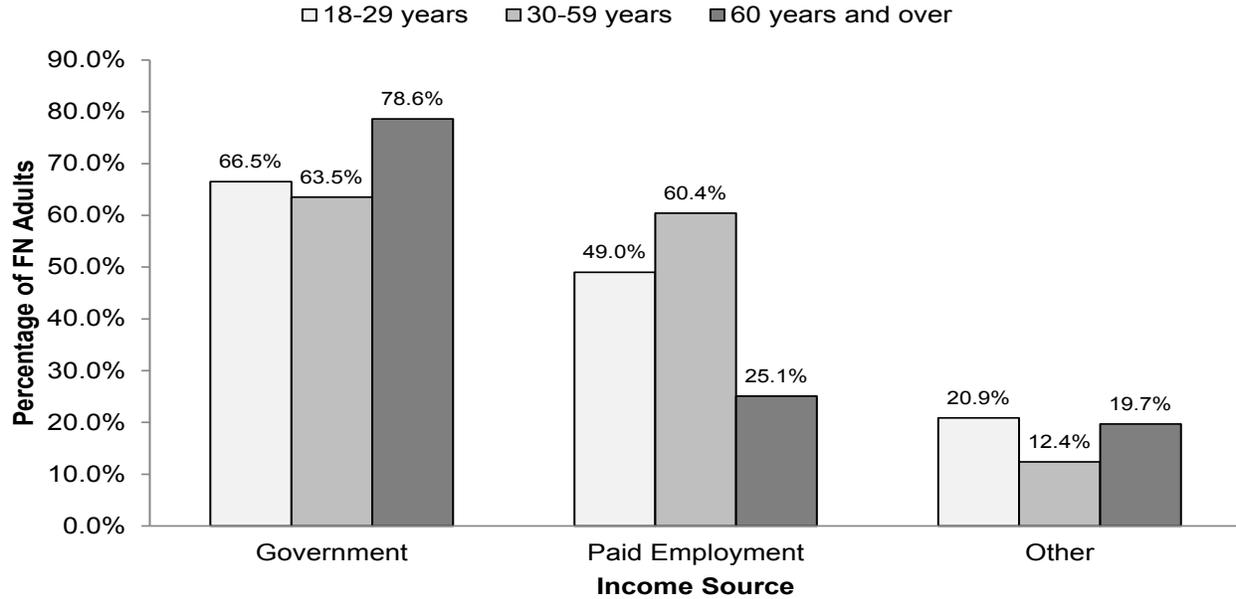


Figure 2.4. Grouped Income Source, by Age, 2007 (n = 11,033)



CONCLUSIONS

While it is certainly true that some First Nations communities, by virtue of leadership, location, or other assets, have broken out of long-standing patterns of economic dependency and stagnation, average figures across First Nations communities reveal that a large percentage of First Nations adults are unemployed and continue to live in poverty. First Nations males and those between 18 and 29 years of age appear to be particularly likely to report disadvantages regarding economic indicators. Low levels of personal income appear to be due in part to difficulties finding stable, rewarding, year-round employment.

Results from RHS 2008/10 suggest that developing employment opportunities for First Nations people living in First Nations communities is critical. Other measure, such as income support programs, would also help to raise individual and family incomes.

Regarding the interconnectedness of all things, improvements to the standard of living would invariably lead to observed success in many other areas of concern among First Nations communities, including educational achievements, health care, and living conditions.

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Chapter 3

Education and Language

EXECUTIVE SUMMARY

Incorporating First Nations culture and language into formal education is increasingly acknowledged to be essential for the success of First Nations students and a fundamental component of lifelong learning (Battiste, 2002). Inspired by holistic models of First Nations education, which include First Nations languages, the present chapter uses results from the First Nations Regional Health Survey (RHS) 2008/10 to provide a contemporary portrait of education and language among First Nations adults living on-reserve or in northern communities.

The results demonstrate that more than one-third (39.9%) of First Nations adults (18 years and up) living in First Nations communities had less than a high school education. This percentage was similar with that reported in RHS 2002/03 (36.3%; 18 years and up), but still higher than the percentage for the general Canadian population (23.8%; 15 years and up). A higher proportion of First Nations adults with less formal education were unemployed, and a higher proportion of those living in remote communities had less than a high school education.

More than two-thirds of First Nations adults (69.6%) reported that they speak or understand a First Nations language. The proportion of adults who indicated the ability to speak and understand a First Nations language increased with age. Compared to RHS 2002/03, a larger percentage of First Nations adults (36.2%) reported that the First Nations language was the language they used most often in daily life. First Nations adults who had graduated high school were more mentally balanced and experienced less psychological distress, compared to those who had not graduated high school.

A lower proportion of First Nations adults with who indicated being intermediate or fluent in First Nations language had thought about and attempted suicide in their lifetimes (compared to those who have a more basic understanding). Incorporating First Nations languages into formal school curricula may provide students with a more holistic education but could also contribute to greater health and well-being.

KEY FINDINGS

- More than one-third (39.9%) of First Nations adults (18 years and up) reported that they had less than a high school education, compared to 36.3% of First Nations adults (18 years and up) in RHS 2002/03 and 23.8% of adults (15 years and up) in the general Canadian population.
- Only 4.9% of First Nations adults reported having obtained a university undergraduate, graduate, or professional degree, compared to 22.6% of the general Canadian population.
- A higher proportion of First Nations adults with fewer years of formal education were unemployed compared to those with more years of formal education; for example, 71.9% of adults who did not complete high school were unemployed, and 30.7% of those with a college diploma or certificate were unemployed.
- The proportion of First Nations adults who reported that First Nations language is the language they use most in daily life increased from 22.3% in RHS 2002/03 to 36.2% in RHS 2008/10. The proportion of adults who understand and speak a First Nations language increased with age.
- First Nations adults who graduated high school were more mentally balanced and experienced less psychological distress, compared to those who did not graduate high school.
- First Nations adults with greater ability in their First Nations language had contemplated and attempted suicide less often than those with less ability in their First Nations language.

INTRODUCTION

Among First Nations people in Canada, education is viewed as a lifelong process that simultaneously affirms cultural practices and equips people with the knowledge and skills that they need to participate in Canadian society (Cappon & Laughlin, 2009). Incorporating First Nations cultures and languages into formal education is increasingly acknowledged to be essential for the success of First Nations students and a fundamental component of lifelong learning (Battiste, 2002). First Nations education, along with research exploring First Nations educational achievement, must include the cultures and languages of First Nations themselves.

Unfortunately, much of the past research exploring First Nations education has used non-First Nations standards to focus on the discrepancy in formal school achievement between First Nations students and students in the general Canadian population. Too often, educational success and achievement have been measured using scores on standardized tests rather than on the holistic, culturally based activities that develop physical, spiritual, mental, and emotional intelligence. The sources of learning and knowledge fundamental to First Nations have not often been acknowledged (Cappon & Laughlin, 2009), and the historical, political, and social contexts of education among First Nations have been similarly ignored.

More recently, holistic models have been developed that seek to examine education among First Nations people in a way that takes into account their own cultures and languages. For example, the First Nations Holistic Lifelong Learning Model created by the Canadian Council on Learning (2007, 2009) is represented by the image of a deep-rooted tree. Each aspect of the tree represents an influencing factor that contributes to holistic lifelong learning. The model provides both a visual and a text-based explanation of how the connections with oneself, others, the community, elders, and the natural world influence and support learning across the lifespan.

A key component of a holistic First Nations education is language. Language is fundamental to learning in general, as it has an impact on the way one comes to understand and experience the world. Languages express identities, are keepers of history, and contribute to human knowledge (Baker, 2006). Aboriginal languages are thus the vehicles through which Aboriginal consciousness, cultures, literatures, histories, religions, political institutions, and values survive (Battiste, 2000). Having knowledge of and using the First Nations language constitutes a foundational element of education for First Nations people.

Research among First Nations students has demonstrated the value of learning the First Nations language for both formal and informal education. Learning through the First Nations language has been shown to be beneficial for students' academic language skills. For example, Inuit students who attended school in Inuktitut attained greater skill in Inuktitut and had the same level of skill in English or French as students who attended school in English or French only (Wright, Taylor, & MacArthur, 2000). McCarty (2002, 2003) argues that teaching in the indigenous language has the potential to fulfill the dual roles of preparing students for success in mainstream society and working towards the revitalization of the indigenous language. Furthermore, Battiste (2002) and others (e.g., Cummins 1986, 2000; Wright & Taylor, 1995) have argued that language learning is an excellent tool for connecting with one's cultural identity through education, thus contributing to a holistic educational development.

Beyond academic achievement, education and language are also consistently related to increased health and wellness. Education is a social determinant of health in that individuals with higher levels of educational attainment tend to have better health. Those who are more educated have better access to healthy environments in general and are better able to decipher and utilize health information, contributing to greater health and well-being (Loppie Reading & Wien, 2009).

Language is similarly associated with increased personal well-being. In a study with young Inuit students, Wright and Taylor (1995) demonstrated that the use of the Inuit language in the classroom was related to increased self-esteem and group pride. Similarly, Hallett, Chandler, and Lalonde (2007) showed that First Nations communities in British Columbia that had higher rates of First Nations language use also had lower rates of suicide than did communities where use of the First Nations language was not as common.

In the First Nations Holistic Lifelong Learning Model depicted by the image of a deep-rooted tree (Canadian Council on Learning, 2007, 2009), the roots represent sources and domains of knowledge, categorized into the domains of self, people, natural world, languages, and traditions. The tree trunk represents the learning rings of the individual, which follow the developmental journey of early learning, elementary and secondary education, post-secondary education, workplace learning, adult learning, and intergenerational learning. Finally, the overarching branches of the tree represent individual and collective well-being, which is further divided into social, spiritual, cultural, political, and

economic domains. This model provides a relevant guide for understanding the connection between formal and informal education, culture and language, and wellness among First Nations people in Canada.

Inspired by this model, the present chapter provides a contemporary portrait of both education and language among First Nations adults living in First Nations communities in Canada. It uses results from the RHS 2008/10 adult survey not only to document the formal educational achievement of First Nations but also to understand associated factors, including community size and remoteness, language, employment status, and personal well-being. In addition, the use of the First Nations language is explored and associated with community size and remoteness and personal well-being. Where possible, the current education and language results are compared with results from RHS 2002/03.

METHODS

In RHS 2008/10, First Nations adults living in First Nations communities were asked to report whether they had graduated from high school. They were also asked to report the highest level of formal education they had completed. As many First Nations adults return to school for upgrading or post-secondary education after a break of several years (Hull, 2005), and due to the fact that some go on to pursue higher education without having received an official high school diploma, it was important to ask about their highest level of education completed (even if they had not graduated from high school). Finally, participants were asked whether they currently work for pay.

The respondents were also asked to report what language they used most often in daily life and whether they could speak or understand a First Nations language. If they reported that they could speak or understand a First Nations language, they were asked to list the First Nations language(s) that they could speak or understand and to rate their level of speaking and understanding on a scale ranging from “a few words” to “fluent.”

The RHS 2008/10 asked respondents to report their feelings of personal wellness by reporting their feelings of balance, distress, and confidence, as well as suicide attempts and suicide ideation. Balance was assessed by asking respondents to report how often in the past 12 months they felt in balance in four aspects of their lives: physical, emotional, mental, and spiritual. Distress was measured using the 10-item Kessler Psychological Distress Scale, which included questions such as “In the past month, how often did you feel hopeless?” and

“In the past month, how often did you feel so restless you could not sit still?” Based on their scores on the Kessler scale, respondents were categorized into one of the following four categories: “Likely to be well,” “Likely to have a mild mental disorder,” “Likely to have a ‘moderate’ mental disorder,” and “Likely to have a severe mental disorder.” Lifetime suicide ideation was assessed by asking “Have you ever thought about committing suicide?” and suicide attempts were assessed by asking “Have you ever attempted suicide?”

The RHS also collected data on the size and level of remoteness of respondents’ communities.

The results for these questions are reported below. All frequencies are reported with their 95% confidence interval. Differences are significant unless otherwise reported.

RESULTS

Formal Education

Highest level of education completed

Among First Nations adults living in First Nations communities, 39.9%¹ reported that they had less than a high school education, 9.8% had a high school education, 22.5% had some college or university, 18.8% had a college diploma or certificate, 3.6% had a university degree, 1.3% had a graduate or professional degree, and 4.1% had an “other” level of education such as upgrading or specific training (95% CIs [38.2, 41.7], [9.0, 10.7], [21.1, 23.9], [17.6, 20.0], [3.1, 4.3], [1.1, 1.6], and [3.5, 4.7], respectively). In RHS 2002/03, 52.4% of First Nations adults had less than a high school education, 19.6% had a high school education, 22.9% had a post-secondary diploma, 4.5% had a bachelor’s degree, and 0.6% had a master’s degree or doctorate.

Due to differences in the age range included in different surveys, it is difficult to make comparisons between the highest level of education completed in the general Canadian population and the highest level completed by First Nations adults living in First Nations communities. The 2006 Census of Canada included individuals aged 15 years and over, whereas RHS 2008/10 collected information from individuals aged 18 years and over. Nonetheless, it appears that First Nations adults have completed less formal education than adults in the general

¹ Having less than a high school education included those respondents who answered ‘no’ to the question “Did you graduate from high school?” and answered that they had not completed ‘some trade, technical, or vocational school’ or ‘some community college or CEGEP’

Canadian population. The 2006 Census demonstrated that 23.8% of adults in the general Canadian population had less than a high school education. This percentage was lower than that for First Nations adults (39.9%) and presumably included some individuals who were too young to have graduated from high school yet. Similarly, 22.6% of adults in the general Canadian population had obtained a university undergraduate, graduate, or professional degree, compared to only 4.9% of First Nations adults.

Post-secondary education

The level of post-secondary education among First Nations adults was found to vary by gender (see Table 3.1).

Significantly more women than men reported completing a post-secondary degree/diploma. In contrast, a higher proportion of males reported having no post-secondary or some post-secondary. In an examination of level of post-secondary education by age, the proportion of those with a post-secondary education was lower among those adults in the youngest and oldest age groups (see Table 3.1). These results were consistent with RHS 2002/03. In the case of younger First Nations adults, they may simply have had less time to complete their education.

Table 3.1. Level of Post-secondary Education, by Gender and Age (n = 10,840)

	Percentage [95% CI] of First Nations adults by gender and age group						
	Male	Female	18–29	30–39	40–49	50–59	60+
No post-secondary	52.2 [50.1, 54.4]	47.2 [44.9, 49.5]	65.6 [62.7, 68.4]	40.8 [37.4, 44.3]	37.5 [34.5, 40.8]	39.8 [36.6, 43.0]	60.8 [57.4, 64.1]
Some post-secondary	25.6 [23.7, 27.6]	19.3 [17.7, 21.0]	20.2 [18.2, 22.4]	25.4 [22.5, 28.6]	26.0 [23.2, 28.9]	23.6 [21.0, 26.3]	15.8 [13.7, 18.1]
Post-secondary degree / diploma	17.7 [16.1, 19.4]	27.2 [25.2, 29.4]	10.8 [9.0, 13.1]	28.5 [25.4, 31.9]	29.4 [26.6, 32.4]	30.0 [27.0, 33.2]	17.9 [15.8, 20.1]
Graduate/ Professional degree	1.1 [0.8, 1.6]	1.5 [1.1, 1.9]	0.5 ^E [0.2, 0.8]	1.1 ^E [0.7, 1.7]	2.1 ^E [1.3, 3.1]	2.1 ^E [1.5, 2.9]	1.2 ^E [0.8, 2.0]
Other (upgrading or specific training)	3.3 [2.7, 4.1]	4.8 [4.1, 5.7]	2.9 ^E [2.0, 4.0]	4.1 [3.2, 5.4]	5.1 [3.8, 6.8]	4.46 [3.6, 5.9]	4.3 [3.4, 5.4]

^E High sampling variability; interpret estimate with caution.

Highest level of education, by community size and remoteness

The highest level of education completed varied by community size (see Table 3.2). It appears that a higher proportion of adults who complete a university degree or graduate/professional degree live in medium and larger communities.

The highest level of education completed varied by the remoteness of the community where First Nations adults lived. Table 3.3 demonstrates that proportion of those with higher levels of education (i.e., some college, college diploma, and university) decreased as the remoteness of the community increased. For example, 32.0% of First Nations adults living in urban settings and 41.4% of First

Nations adults living in rural communities had less than a high school education. In contrast, 51.9% of First Nations adults living in remote communities and 57.6% of First Nations adults living in special access communities had less than a high school education (95% CIs [29.4, 34.7], [39.1, 43.8], [45.3, 58.5], and [53.9, 61.2], respectively).

Table 3.2. Highest Level of Education Completed, by Community Size (n = 10,840)

	Small (< 300 people)	Medium (300 to 1,499 people)	Large (>1,500)
Less than high school	34.9 [31.9, 38.0]	41.6 [39.3, 43.9]	38.9 [35.9, 42.1]
High school	11.3 [9.7, 12.2]	10.6 [9.3, 12.0]	8.6 [7.3, 10.1]
Some college/diploma/ university	26.5 [24.6, 28.5]	22.0 [20.0, 24.2]	22.2 [20.2, 24.3]
College diploma or certificate	20.8 [18.5, 23.3]	17.4 [15.9, 19.1]	20.0 [17.9, 22.2]
University degree	2.1 ^E [1.5, 3.0]	3.2 [2.7, 4.0]	4.4 [3.3, 5.9]
Graduate or professional degree	0.9 ^E [0.6, 1.6]	0.8 ^E [0.6, 1.1]	2.0 ^E [1.5, 2.6]
Other (upgrading or specific training)	3.5 [2.6, 4.7]	4.3 [3.7, 5.0]	3.9 ^E [2.9, 5.2]

^E High sampling variability; interpret estimate with caution.

Table 3.3. Highest Level of Education Completed, by Community Remoteness (n = 10,840)

	Urban	Rural	Remote	Special Access
Less than high school	32.0 [29.4, 34.7]	41.4 [39.1, 43.8]	51.9 [45.3, 58.5]	57.6 [53.9, 61.2]
High school	10.6 [9.1, 12.4]	9.8 [8.6, 11.2]	7.6 ^E [4.9, 11.2]	7.7 ^E [5.9, 10.1]
Some college/diploma/ university	24.3 [21.8, 27.0]	23.7 [21.8, 25.7]	15.3 [10.9, 20.9]	13.7 [11.5, 16.0]
College diploma or certificate	22.7 [20.6, 25.0]	17.3 [15.7, 19.0]	13.2 [9.6, 17.8]	12.3 [10.6, 14.3]
University degree	4.7 [3.5, 6.2]	3.2 [2.6, 3.9]	^F	2.2 ^E [1.4, 3.4]
Graduate or professional degree	1.9 [1.5, 2.4]	0.9 ^E [0.2, 0.6]	4.1 ^E [2.1, 7.6]	^F
Other (upgrading or specific training)	3.8 [2.7, 5.2]	3.7 [3.1, 4.4]	5.8 ^E [3.6, 9.2]	6.1 [4.9, 7.4]

^E High sampling variability; interpret estimate with caution.

^F suppressed due to very high sampling variability (CV > .333).

Highest level of education, by employment status

Regarding employment status, it appears that a higher proportion of adults with higher education were employed compared to those with lower levels of education. For instance, 71.9% of those with less than a high school education were unemployed; 30.7% of those with a college diploma or certificate were unemployed; and 15.3% of those with a university degree, were unemployed (95% CIs [69.6, 74.1], [27.3, 34.4], and [11.5, 20.0], respectively).

The First Nations Language

Understanding and speaking a First Nations language

Almost 70% of First Nations adults (69.6%, 95% CI [66.8, 72.2]) reported that they could speak or understand a First Nations language. A similar proportion of males (69.6%) and females (69.5%) could speak or understand a First Nations language. The proportion of adults who can speak or understand a First Nations language increased with age (see Figure 3.1). Of those

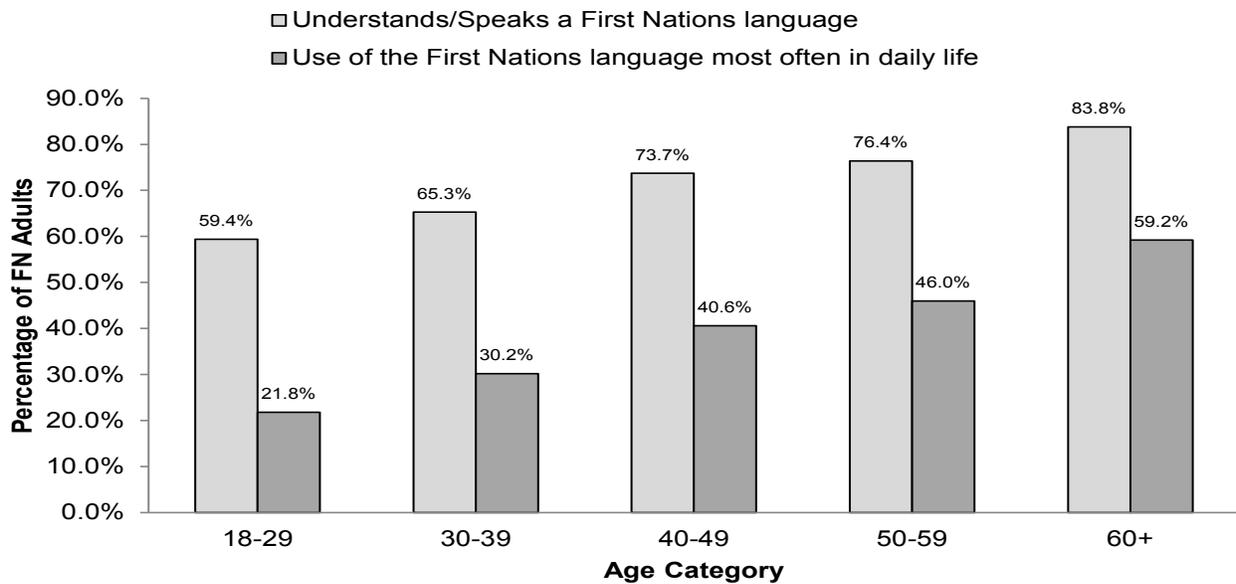
who reported that they could speak or understand a First Nations language, 61.0% (95% CI [58.7, 63.3]) reported that they understood the language at an intermediate or fluent level and 56.9% (95% CI [54.5, 59.3]) reported that they could speak at an intermediate or fluent level.

Using the First Nations language in daily life

Approximately one-third (36.2%, 95% CI [33.7, 38.8]) of First Nations adults reported that a First Nations language was the language they used most often in daily life.

Similar percentages of men (36.7%) and women (35.7%) reported using a First Nations language as the language they use most in daily life. Comparisons with the results from RHS 2002/03 demonstrate that fewer First Nations adults in 2002/03 (22.3%) reported that a First Nations language was the one they used most often in daily life. It appears that use of a First Nations language increased with age, with higher proportions of First Nations adults in the older age categories reporting that a First Nations language was the language they used most often in daily life, compared to those in the younger age categories.

Figure 3.1. Percentage of First Nations Adults Able to Speak or Understand a First Nations Language (n = 10,839) and Percentage who Use a First Nations Language Most Often in Daily Life (n = 11,029), by Age



Use of a First Nations language, by community size and remoteness

The use of a First Nations language in daily life increased as community size increased. In small communities (fewer than 300 people), only 15.5% (95% CI [10.7, 22.0]) of First Nations adults reported that they used a First Nations language most often in daily life. This was significantly lower than the 33.6% (95% CI [30.5, 36.8]) of First Nations adults living in medium-sized communities (300 to 1,499 people) who reported using a First Nations language most often in daily life. In large communities (more than 1,500 people), 43.9% (95% CI [39.2, 48.7]) of First Nations adults reported using a First Nations language most often in daily life. The use of a First Nations language also increased as the remoteness of the community increased. In urban settings, 26.1% (95% CI [21.8, 31.0]) of First Nations

adults reported using a First Nations language most often in their daily life. This was significantly lower than the 38.8% (95% CI [35.3, 42.4]) of First Nations adults living in rural communities, the 62.8% (95% CI [48.6, 75.1]) of First Nations living in remote communities, and the 55.1% (95% CI [47.8, 62.2]) of First Nations living in special access communities who reported using a First Nations language most often in daily life.

First Nations languages spoken

Appendix A shows the percentage of First Nations adults living in First Nations communities who reported speaking or understanding the various First Nations languages. The Algonquian language was the most commonly cited language of adults who speak or understand a First Nation language (59.6%).

Education and Language

Formal education and speaking or understanding a First Nations language

Among First Nations adults who reported that they could speak or understand a First Nations language, those with less than a high school education reported some of the highest rates of being able to speak or understand a language at fluent or intermediate levels. Those with university degrees and graduate or professional degrees also had high rates of fluent or intermediate First Nations language ability (see Table 3.4).

Table 3.4. Percentage of First Nations Adults Reporting Intermediate/Fluent First Nations Language Ability, by Highest Level of Education Completed

	Intermediate/fluent understanding % [95% CI]	Intermediate/fluent speaking % [95% CI]
Less than high school	68.1 [65.6, 70.5]	64.4 [61.8, 66.9]
High school	50.8 [44.9, 56.7]	47.0 [41.2, 52.7]
Some college / diploma / university	54.6 [50.1, 59.1]	51.2 [46.5, 55.8]
College diploma or certificate	55.2 [50.9, 59.5]	49.4 [45.0, 53.7]
University degree	60.5 [49.9, 70.2]	52.4 [42.7, 61.9]
Graduate or professional degree	71.9 [61.5, 80.4]	70.9 [59.3, 80.3]
Other (upgrading or specific training)	68.6 [60.3, 75.9]	64.8 [56.8, 72.1]

Education and Personal Wellness

Education and balance

First Nations adults who reported having graduated from high school reported moderately higher percentages of physical, emotional, mental, and spiritual balance than did those who did not graduate from high school, with the largest difference occurring for mental balance. Specifically, 82.5% (95% CI [79.7, 85.3]) of high school graduates reported experiencing mental balance all or most of the time, compared to 70.4% (95% CI [68.1, 72.7]) of those who did not graduate from high school.

Education and psychological distress

A lower proportion of First Nations adults who had completed high school reported experienced psychological distress compared to those who did not graduate from high school. Among First Nations adults who had less than a high school education, 65.7% were likely to be well, 16.1% were likely to have a mild mental disorder, 9.8% were likely to have a moderate mental disorder, and 8.4% were likely to have a severe mental disorder. Among First Nations adults with a college diploma or certificate, 72.0% were likely to be well, 15.8% were likely to have a mild mental disorder, 6.8% were likely to have a moderate mental disorder, and 5.3% were likely to have a severe mental disorder. The highest levels of psychological distress were reported by those with 'other' types of training, such as upgrading or specific training and those with less than a high school education (see Table 3.5).

Table 3.5. Psychological Distress, by Highest Level of Education (n = 10,181)

	Percentage [95% CI] of First Nations adults			
	Likely to be well	Likely to have a mild mental disorder	Likely to have a moderate mental disorder	Likely to have a severe mental disorder
Less than high school	65.7 [63.1, 68.1]	16.1 [14.3, 18.0]	9.8 [8.5, 11.3]	8.4 [7.2, 9.8]
High school	73.6 [69.7, 77.3]	12.7 [10.2, 15.6]	9.8 [7.4, 13.0]	3.8 ^E [2.5, 5.8]
Some college / diploma / university	68.0 [64.8, 71.0]	17.5 [15.0, 20.2]	8.0 [6.5, 9.8]	6.6 [5.3, 8.1]
College diploma or certificate	72.0 [68.9, 75.0]	15.8 [13.5, 18.5]	6.8 [5.5, 8.3]	5.3 [4.3, 6.7]
University degree	79.2 [73.2, 84.2]	13.5 [9.7, 18.6]	3.8 ^E [2.0, 7.2]	3.4 ^E [2.0, 5.9]
Other (upgrading or specific training)	57.0 [50.5, 63.2]	19.2 [15.0, 24.1]	13.1 [10.0, 17.1]	10.7 [8.0, 14.2]

^E High sampling variability; interpret estimate with caution.

Education and suicide

A different pattern emerged when examining suicide ideation by highest level of education completed. Of the First Nations adults who had a high school education, 19.1% (95% CI [17.3, 21.1]) reported having thought about committing suicide at some point in their lifetime. In contrast, of those with a college diploma or certificate, 25.1% (95% CI [22.6, 27.8]) had thought about committing suicide. It appears that a larger proportion of First Nations adults with more formal education have thought about committing suicide at some point in their lives, compared to those with less formal education.

Language and Personal Wellness

Language and balance

No difference was observed in the proportion of First Nation adults reporting feeling balanced 'all of the time' among those who use a First Nations language most often and those who use another language [physical balance: 27.9% vs. 25.5%; emotional balance: 26.7% vs. 23.2%; mental balance: 28.9% vs. 26.9%; and spiritual balance], with the exception of spiritual balance (32.5% vs. 25.1%, respectively).

Language and psychological distress

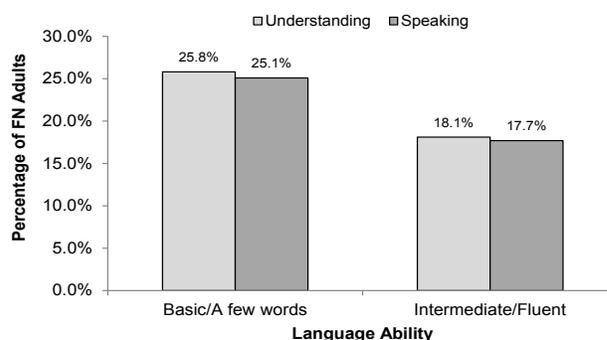
First Nations adults who reported speaking a First Nations language most often in daily life and those who reported using another language in daily life reported similar levels of psychological distress. Approximately two-thirds (67.9%, 95% CI [65.5, 70.2]) of the First Nations adults who reported using a First Nations language most often in their daily life were likely to be well according to their scores on the Kessler Psychological Distress Scale. This was similar to the 68.8% (95% CI [66.7, 70.8]) of First Nations adults who did not use a First Nations language most often in daily life who were likely to be well. The same was true when examining level of psychological distress by ability to speak or understand a First Nations language. Of the First Nations adults who reported having an intermediate or fluent understanding of a First Nations language, 68.1% were likely to be well and 6.7% were likely to have a severe mental disorder (95% CIs [65.7, 70.3] and [5.8, 7.7], respectively). These results were very similar to the results for those who reported having only a basic understanding or understanding a few words of a First Nations language, where 68.3% were likely to be well and 6.6% were likely to have a severe mental disorder (95% CIs [65.5, 71.0] and [5.4, 8.0], respectively).

Language and suicide

Of the First Nations adults who reported that they used

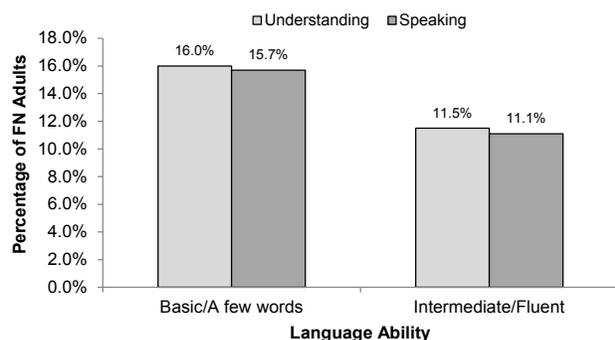
a First Nations language most often in daily life, 19.9% (95% CI [18.3, 21.7]) reported that they had thought about committing suicide, compared to 23.1% (95% CI [21.5, 24.8]) of those who did not often use a First Nations language in daily life. Although this difference is not significant, it does point toward the possibility that use of a First Nations language is associated with reduced suicide ideation. This possibility was supported by an examination of First Nations adults' abilities to speak or understand a First Nations language (see Figure 3.2). Of the First Nations adults who reported understanding a First Nations language at a basic level or understanding just a few words, 25.8% (95% CI [23.3, 28.5]) reported that they had thought about committing suicide. However, of those First Nations adults who reported understanding a First Nations language at an intermediate or fluent level, 18.1% (95% CI [16.6, 19.8]) reported having thought about committing suicide. Similarly, of those who were able to speak a First Nations language at a basic level or speak just a few words, 25.1% (95% CI [22.8, 27.5]) had thought about committing suicide, compared to 17.7% (95% CI [16.0, 19.4]) who could speak at an intermediate or fluent level.

Figure 3.2. Percentage of First Nations Adults who had thought about Committing Suicide, by First Nations Language Ability



These results led to a further investigation of actual suicide attempts. A similar pattern was obtained (see Figure 3.3). Of the First Nations adults who reported understanding a First Nations language at a basic level or understanding just a few words, 16.0% (95% CI [14.2, 18.1]) reported that they had attempted suicide. However, of those who reported understanding a First Nations language at an intermediate or fluent level, 11.5% (95% CI [10.2, 12.9]) reported having attempted suicide. Similarly, of the First Nations adults who were able to speak a First Nations language at a basic level or speak just a few words, 15.7% (95% CI [14.0, 17.6]) had thought about committing suicide, compared to 11.1% (95% CI [9.8, 12.5]) who could speak at an intermediate or fluent level.

Figure 3.3. Percentage of First Nations Adults who had Attempted Suicide, by First Nations Language Ability



DISCUSSION

Although the proportion of those with less than a high school education decreased since the previous RHS, the continued low rates of high school graduation are troubling. Future work must further understand this discrepancy and continue to find methods of improving educational outcomes among First Nations adults living in First Nations communities.

A higher proportion of First Nations women pursued some form of post-secondary education compared to First Nations men. In addition, a lower proportion of First Nations adults living in remote and special access communities completed higher formal education compared to those living in urban settings. Efforts to improve educational experiences and outcomes might then need to be targeted, at least partially, towards men and towards those living in remote communities. Higher levels of education were also associated with employment, making initiatives to improve educational attainment among First Nations all the more important.

Almost 70% of First Nations adults reported being able to speak or understand a First Nations language, and more than 35% reported that a First Nations is the language they use most often in daily life. There was an increase in the use of First Nations language since RHS 2002/03, when 22.3% reported that their First Nations language was the one they used most often in daily life. This is an encouraging trend; however, it appears that more adults in the older generations understand and speak their First Nations language compared to those in younger generations, a finding that has negative implications for the strength of First Nations languages in general. Across Canada, First Nations languages are at considerable risk of being lost due to pressure from the more pervasive and dominant English language (Norris, 2007). If younger adults are not learning and using the language, this risk is intensified.

One of the most promising methods of language revitalization is through the inclusion of First Nations language as a language of instruction in schools. In the case of a threatened language, research has consistently demonstrated that teaching young students in this language can be an effective way of producing more language speakers (Baker, 2006; Fishman, 2001), instilling a strong sense of cultural identity (Battiste, 2002; Wright & Taylor, 1995), and preparing students for success in mainstream society (Cummins, 1986, 2000). Including First Nations languages in formal educational programs might help to strengthen these languages and be beneficial for students and communities.

The results from RHS 2008/10 demonstrated that First Nations adults with less than a high school education and those with a university degree were the strongest language speakers. This is an interesting result that might be confounded with age. Those in older age categories have a higher level of education less often *and* speak a First Nations language more often, making the results appear to show that having less education is associated with stronger First Nations language ability. However, those with higher university degrees were also strong language speakers. These results highlight an important possibility—that higher education and First Nations language ability can go hand in hand.

Consistent with past research (e.g., Loppie Reading & Wien, 2009; Hallett et al., 2007), both education and First Nations language ability were associated with aspects of personal wellness. In the current results, a higher proportion of those with more formal education reported feeling balanced and less distressed compared to those with lower levels of formal education. However, a higher proportion of those with higher levels of educational attainment also had thought about committing suicide at some point in their lives compared to those with lower formal education. These conflicting results warrant further investigation. Given that the current results also demonstrate that a lower proportion of those who had greater language ability (intermediate/fluency in speaking and understanding) had thought about and attempted suicide at some point in their lives, it would be interesting to examine the interrelationships among education, language, and suicide. Consistent with research by Hallett et al. (2007) that found lower suicide rates in communities where First Nations language use was more pervasive, there appears to be an important relationship between First Nations language and suicide. Again, including more culture and language in First Nations education might be a promising avenue for researchers and policy-makers.

CONCLUSIONS

Unfortunately, First Nations education has historically ignored and even attempted to destroy the languages and cultures that represent a fundamental component of First Nations ways of knowing. Residential schools and Euro-centric curricula have often encouraged First Nations people to give up their culture, language, and traditional ways of being.

More recently, education in First Nations communities, as well as research on First Nations education, has taken a more holistic view of First Nations education (e.g., Canadian Council on Learning, 2009). Including First Nations cultures and languages in formal education is acknowledged to be essential for First Nations students and an important part of lifelong learning (Battiste, 2002).

The results of RHS 2008/10 demonstrate that more attention must be paid not only to narrowing the gap in formal educational achievement between First Nations people living on-reserve or in northern communities and the general Canadian population but also to the positive role that First Nations cultures, and especially languages, can play in education. Perhaps incorporating First Nations languages into formal school curricula could provide students with a more holistic education and could contribute to the greater health and well-being of First Nations in Canada.

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Chapter 4

Housing and Living Conditions

EXECUTIVE SUMMARY

The First Nations Regional Health Survey (RHS) provides a lens through which we can better understand the household environment of First Nations people living on-reserve and in northern communities. This chapter explores household ownership, occupancy, and income; access to basic household necessities and amenities; and the presence of mould and mildew. The RHS 2008/10 data are contextualized through comparisons with data from the previous Regional Health Survey (2002/03) and with data from the general Canadian population. Many areas in need of improvement are noted, including required household repairs, high prevalence of household mould or mildew, over-crowding, and access to potable water. Results reveal that those living in band-owned housing and those with lower household income are more likely to report poor living conditions. Few improvements since the RHS 2002/03 were observed, with the exception of increases in home computer and internet access. Results are discussed.

KEY FINDINGS

- More than one-in-three First Nations adults have an annual household income of less than \$20,000. The proportion of adults with a household income under \$20,000 has increased since the previous 2002/03 RHS (37% vs. 30.7%, respectively) and remains much higher than that of the general Canadian population (6.4%).
- 16.5% of First Nations adults financially struggle (i.e., missing payments or having to borrow money) on a monthly or more basis to pay for food.
- Approximately one-quarter of First Nations adults live in over-crowded housing (23.4%), representing a substantial increase since the previous RHS (17.2%). In the general Canadian population, 7% of adults live in over-crowded housing (CMHC, 2011b).
 - The proportion of adults living in over-crowded housing is higher among those whose household income is less than \$25,000/year and among those who live in band-owned housing.
- 37.3% of First Nations adults report that their home is in need of major repairs.
- A small number of First Nations adults reported not having basic amenities in their home, such as hot running water (3.4%), cold running water (2.1%), and flush toilets (2.7%). No improvement was observed since previous RHS (2002/03).
- More than one-third (35.8%) of First Nation adults did not perceive their main water supply in their home to be safe for drinking year round. No improvement was observed since the previous RHS (2002/03).
- Half of First Nations adults were living in homes with mould or mildew (50.9%), representing an increase since the previous RHS 2002/03 (44.0%).
- Many adults indicated that their household did not have basic safety equipment, such as working smoke detectors (22.6%), fire extinguishers (53.1%) and carbon monoxide detectors (78.1%).
- The proportion of First Nations adults reporting presence of a home computer (60.2%) and internet access (51.8%) increased since the previous RHS; however, prevalence still lags behind that of the general Canadian population.

And I say the sacred hoop of my people was one of the many hoops that made one circle, wide as daylight and as starlight, and in the center grew one mighty flowering tree to shelter all the children of one mother and one father.

—[Black Elk](#)

INTRODUCTION

The health of First Nations people and their communities must be considered in the context of the housing and living conditions in which First Nations live and raise their families. Having a place to call home is associated with feelings of safety, security, and privacy. However, for many living in First Nations communities, housing and living conditions are substandard and appear not to have improved since the 1996 Royal Commission on Aboriginal People (RCAP).

The World Health Organization's (WHO) 1986 Ottawa Charter for Health Promotion recognizes the quality of housing as a critical precursor to the health and well-being of individuals and families, and indicates that improvements to housing can have a dramatic and measurable positive impact on health (WHO, 1986). Inadequate, unsuitable, and unaffordable housing has been linked to chronic health conditions such as asthma and poor mental health (Health Evidence Network, 2005). Poor housing has also been linked to the spread and chronic occurrence of viruses and bacteria (Public Health Agency of Canada [PHAC], 2003), and the increased prevalence of unintentional injuries (Garzon, 2005).

Housing improvements linked with improved health include renovations, relocation, and energy efficiency projects. For children, housing improvements were associated with a decrease in respiratory illnesses and lower rates of school absenteeism (Health Evidence Network, 2005). For adults, long-lasting improvements in mental health have been demonstrated (Health Evidence Network, 2005).

Living conditions and housing in First Nations communities are shaped not only by economics but also by social policy and the political landscape. The discussion that follows provides the context for understanding the quality of housing and living conditions in First Nations communities.

Home ownership in First Nations communities is relatively uncommon, compared to the general Canadian population. Standard Canadian mortgages are problematic in a reserve context because First Nations

land cannot be mortgaged to anyone who is not a band member; thus, a non-band lender would be unable to collect on a defaulted loan (INAC, n.d.c). Among the general Canadian population the pattern is reversed, with home ownership through private lending agencies being the most common scenario, and community and social housing being much less common. Almost two-thirds (65.1%) of all Canadian homes are privately owned, and only a small percentage of Canadians live in community or social housing (Statistics Canada, 2009).

The current availability of housing in First Nations communities is not sufficient to meet the needs of the population. In 2004, Indian and Northern Affairs Canada (INAC) estimated the total on-reserve housing shortfall at 20,000 units (Canada Mortgage and Housing Corporation [CMHC], 2004). This is further compounded by an additional annual shortfall of 2,200 units (CMHC, 2004). In addition, the average home built on-reserve is habitable half as long as one off-reserve (RCAP, 1996), due primarily to poor construction practices that do not take into account the natural environment, limited funding for building and renovations, barriers to self-home renovations due to low income, and overcrowding resulting in accelerated levels of use (CMHC, 2004).

Despite increased demand, funding levels for on-reserve housing have been stagnant over the past 10 years, sitting at about \$272 million per year (INAC, 2010). Given that the First Nation population is much younger than the general Canadian population and the growth rate is double that of the Canadian rates (INAC & CMHC, 2010), the demand for suitable, affordable, and adequate housing will only increase. If safe and suitable housing cannot be secured for the growing population, the health and social concerns associated with substandard housing will multiply.

National public policies and the community administration of policy both play an integral role in determining the quantity and quality of housing in First Nations communities (Assembly of First Nations [AFN], 2010a). There is great variation in the administration of housing among First Nations communities and among the provinces and territories. Broadly speaking, construction and maintenance of homes in a First Nations community proceeds primarily through two funding channels: INAC and CMHC. A number of First Nations view housing as a treaty right and therefore maintain that it is the fiduciary obligation of the Government of Canada to provide housing on-reserve for all status Indians. In the 1960s, INAC introduced a housing subsidy program to assist in the construction of new homes and the rehabilitation of existing houses

in First Nations communities. A 1982 INAC evaluation of this policy concluded that housing in First Nations communities was seriously inadequate (INAC, 2008). One of the main issues found in that review was provision of funds; some bands provided only the limited INAC funds allowed per newly constructed home, resulting in the building of substandard housing. The results of these practices prevail today, as many of the existing homes in these communities were built under this policy.

In 1996, a new joint housing policy was introduced by INAC and CMHC. This policy aimed to provide greater flexibility and increased control to First Nations over housing policies and programs. First Nations were given the choice of opting into the policy or not. If they opted in, they were given the flexibility to use INAC's housing funds in support of the implementation of their community-based housing plans, which included elements such as maintenance and insurance, debt charges, training, management, and supports to establish housing authorities for control over housing. All of the First Nations in British Columbia, as well as a few in Ontario and the Atlantic provinces, opted out of the policy, and they continue to be covered under the 1960 housing subsidy program (INAC, 2008). In part, the First Nations that opted out maintain that the government must remain responsible for adequately funding housing and that the 1996 policy was more about passing the responsibility on to First Nations (AFN, 2007).

In 2005, INAC implemented a new housing policy that emphasized home ownership, lot servicing, and renovation. Furthermore, in 2007, CMHC introduced the First Nations Market Housing Fund, a \$300million fund that worked in tandem with the INAC 2005 policy, with the goal of increasing ownership. In the 2005 Federal budget, the government announced the investment of an additional \$295 million over five years through INAC and CMHC for housing construction, renovation, and lot servicing in First Nations communities. INAC's portion of the 2005 Federal budget funds was to be spent by March 2008, while CMHC's portion was committed by March 2007 (INAC, 2008).

A 2008 INAC evaluation report on the 1996 housing policy (INAC, 2008) suggested that while housing conditions in First Nations communities were worse than those in the rest of Canada, there was some improvement between 1996 and 2006. Identified improvements included a greater number of housing units and less crowding - although both continue to require significant improvements. The report contended that if the status quo was maintained there would be gradual improvements to

housing. It must be noted that the report did not take into account population growth projections and demographics (i.e., young population and high birthrate), which strongly influence housing occupancy, adequacy, and crowding.

This chapter will explore housing and living conditions for First Nations adults in First Nations communities. The RHS 2008/10 data for housing ownership, household occupants, household resources, and the ability to meet basic housing needs are explored. In addition, current housing conditions, crowding, presence of basic household safety and technology equipment, and source and quality of household water will also be examined. To assess change over time, where possible, comparisons will be made to RHS 2002/03 (First Nations Information Governance Committee, 2005). Comparisons will also be made to the general Canadian population.

METHODS

The RHS 2008/10 included various questions relating to housing and living conditions.

Household income

First Nations adults were asked about their total annual household income [14 income categories were provided: ranging from 'income loss'/'no income' to '\$80000/year and over'].

Housing ownership

Respondents were asked whether their primary residence is rented or owned by a household member [response options: "rented by you or another member of this household", "owned by you or another member of this household", or "other"] and whether the home is band-owned [response options: "no", "yes"].

Household occupancy and over-crowding

To determine household occupancy, respondents were asked to indicate how many children (0 to 17 years) and adults (18 to 65+ years) live in the household *at least half of the time*. Number of rooms in the household was also asked (including kitchen, bedrooms, living rooms and finished basement rooms – excluding bathrooms, halls, laundry room and attached sheds; response options ranging from "0" to "13 or more"). The RHS overcrowding index is derived from CMHC guidelines (defined as more than one person per habitable room; Statistics Canada, 2009).

Basic needs

Respondents were asked whether, in the past 12 months, they have struggled to meet the following

basic living requirements: shelter, clothing, food, utilities (heat, electricity), transportation, and childcare [response options: “no”, “a few times a year”, “monthly”, and “more than once a month”].

Water supply

Respondents were asked where the main water supply for their household comes from [i.e., where most of the household’s water comes from for showers, toilets, etc. Not necessarily the same as drinking water] (response options: “piped in (local or community water supply”, “trucked in”, “well (individual or shared)”, “collect it yourself from river, lake, pond”, “collect it yourself from water plan”, “from a neighbour’s house” and “other”). Next, respondents were asked if they consider the main water supply in their household safe for drinking year round (yes, no). Finally, respondents were asked if they used any other sources of drinking water (response options: “no other sources”, “bottled water”, “water from another house”, “boiled tap water”, “river, lake or stream”, “other”).

Household amenities, repairs, and mould

Respondents were asked whether their home has the following amenities (yes, no): a working smoke detector, a carbon monoxide detector, a fire extinguisher, a telephone with service, a computer, an internet connection, a refrigerator, a stove for cooking, electricity, cold running water, hot running water, a flush toilet, septic tank/sewage service, and garbage collection service.

Respondents were also asked whether their dwelling is in need of repairs [response options: “yes, major repairs” (including defective plumbing or electrical wiring, structural repairs to walls, floors, ceiling, etc.), “yes, minor repairs” (including missing or loose floor tiles, bricks, shingles, defective steps, railings, siding, etc.), and “no, only regular maintenance is required” (including painting, furnace).] Finally, respondents were asked if there has been mould or mildew in their home in the past 12 months (yes, no).

RESULTS

Housing Ownership

Two-thirds (65.7% [± 2.7]) of First Nations adults lived in band-owned housing; no change was observed in the proportion of adults living in band-owned housing since the previous RHS.

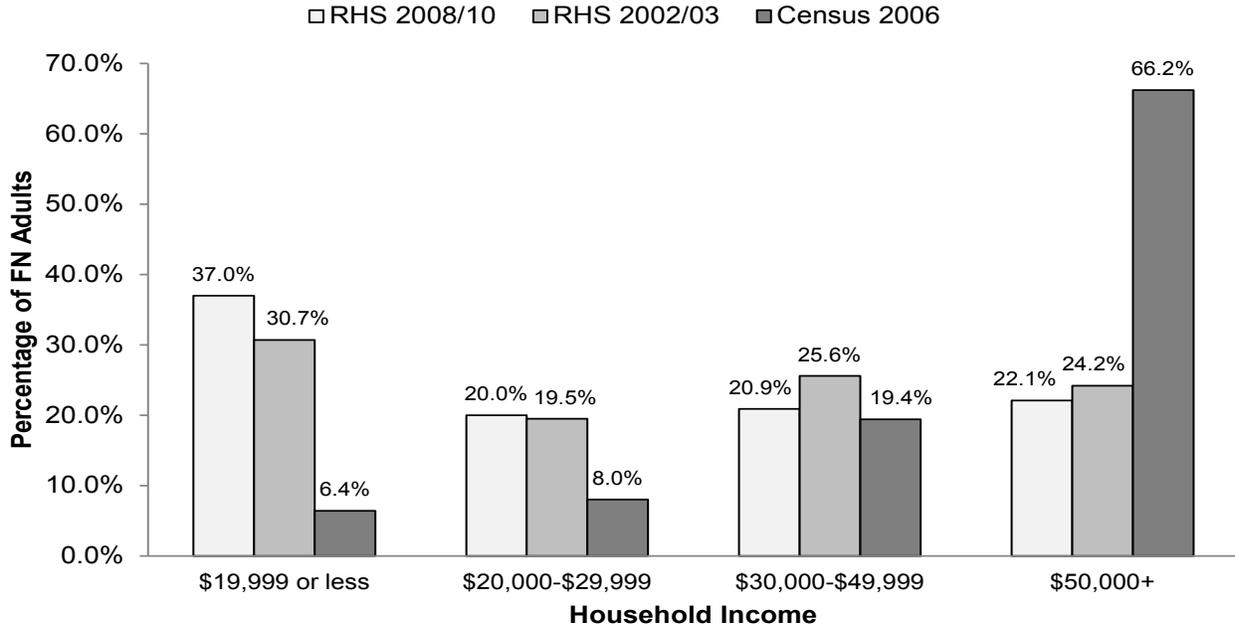
A greater proportion of First Nations adults with a household income of less than \$25,000 reported living in

band-owned housing (72.3% [± 2.4]) compared to those with a higher household income (\$25,000+; 59.0% [± 4.3]).

Household Resources and Ability to Meet Basic Living Expenses

More than one-in-three First Nations adults had an annual *household* income of less than \$20,000 (Figure 4.1). The proportion of adults with a household income under \$20,000 has increased since the previous 2002/03 RHS (37% [± 2.3] vs. 30.7% [± 3.5], respectively) and remains much higher than that of the general Canadian population (6.4%). In contrast, general Canadian adults are significantly more likely to have a total household income of \$50,000 or more compared to First Nations adults (66.2% vs. 22.1%).

Figure 4.1. Household Income Levels, RHS 2008/10 (n = 7,431), RHS 2002/03, and Census 2006* Households

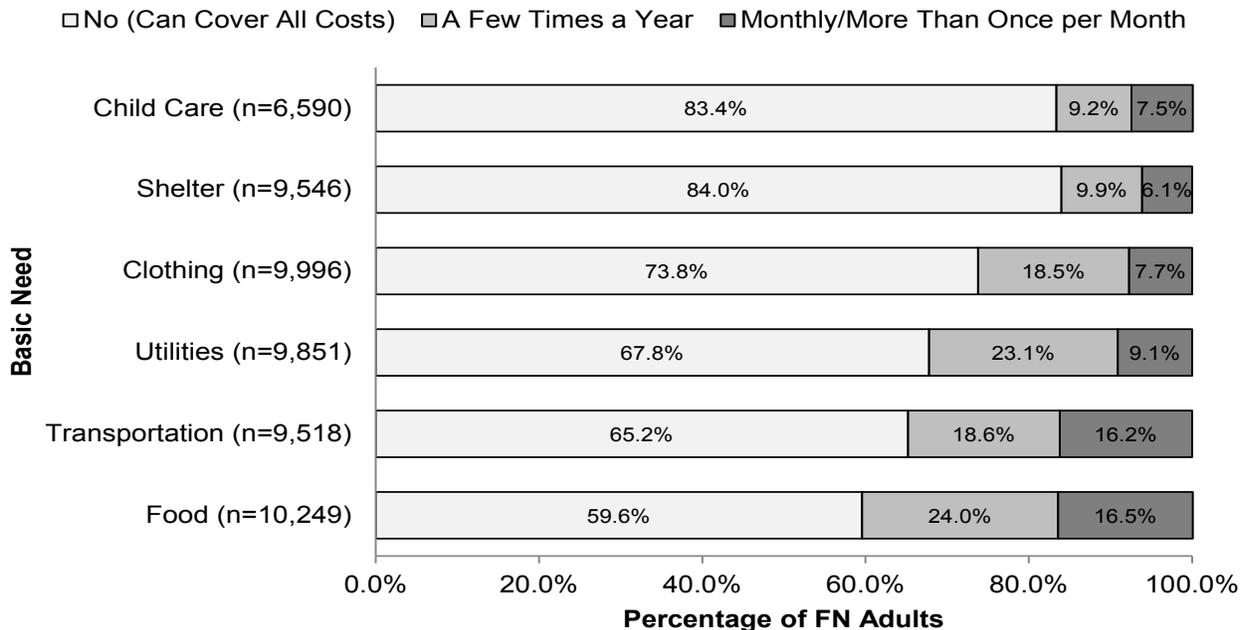


*Income for 2005 from Census 2006 (Statistics Canada, 2011).

First Nations adults were asked to identify whether they had struggled financially (i.e., missing payments or having to borrow money) to meet basic living requirements in the past 12 months. According to Figure 4.2, the majority of First Nations adults reported that they were able to meet basic needs. A

sizeable minority of First Nations adults struggled with finances for food, transportation, and utilities; for instance, 16.5% struggled on a monthly or more basis to pay for food, 16.2% struggled to cover the costs of transportation, and 9.1% struggled to pay for utilities.

Figure 4.2. Frequency of Inability to Meet Basic Living Requirements



Household Size and Resident Characteristics

There has been a general downward trend in Canadian household size over time, holding steady at 2.5 residents per household since 1996 (Roberts, Clifton, Ferguson, Kampen, & Langlois, 2005). In contrast, First Nations adults reported 4.2 household occupants, including themselves (i.e., those living in the household at least half the time). First Nations adults reported, on average, having a household of 2.6 [± 0.06] adults (including themselves) and 1.8 [± 0.08] children or youth. No change was observed in number of household residents since the previous RHS (2002/03).

Among the general Canadian population, households of two people are the most common, at 33.5%. By contrast, in First Nations communities, households of six or more are the most common, at 25.7%. With respect to single-member households, 26.7% of adults in the general Canadian population live in one-person households (CMHC, 2011a) compared to 11.3% (95% CI [± 0.8]) of First Nations adults.

Crowding

Approximately one-quarter of First Nations adults lived in over-crowded housing (23.4%). This represents a substantial increase in over-crowding since the previous RHS (17.2% [± 0.8]). In the general Canadian population, 7% of adults live in over-crowded housing (CMHC, 2011b).

The proportion of adults living in over-crowded housing was higher among those whose household income was less than \$25,000 (vs. those with a higher income, 24.5% [± 2.1] vs. 18.1% [± 2.1]) and among those who lived in band-owned housing (vs. those who do not live in band-owned housing, 28.2% [± 2.1] vs. 13.1% [± 2.0]), (95% CIs) respectively.

Physical Condition of Homes

The majority of First Nations adults reported that their home was in need of some repair [major repairs (37.3%), minor repairs (33.5%)]. Fewer than one-third of adults (29.2%) perceived the need for only regular maintenance/ no maintenance to their home, 95% CIs [± 2.0], [± 1.3], and [± 1.8], respectively (see Figure 4.3). No significant change was observed between 2002/03 and 2008/10 in the proportion of adults who perceive the need for major repairs to their home (37.3% [± 2.0] vs. 33.6% [± 2.5]).

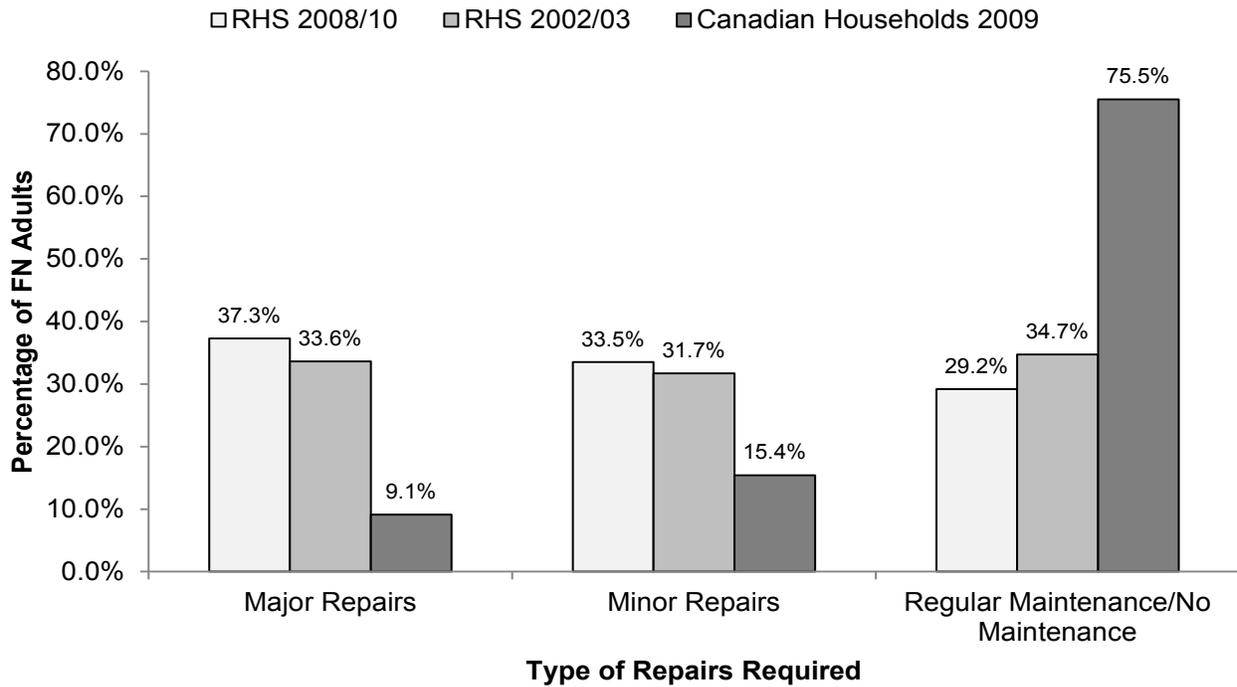
It appears that a much greater proportion of First Nation homes required major repair compared to the homes of those in the general Canadian population. While 9.1% of general Canadian households were reported to be in need of major repair, 37.3% of First Nations adults reported that their home was in need of major repair (Statistics Canada, 2010).¹

A higher proportion of First Nations adults living in band-owned homes indicated that their home was in need of major repair (41.8% [± 2.3]), compared to adults who lived in non-band-owned homes (29.5% [± 3.0]).

In addition, a higher proportion of adults with a household income of less than \$25,000 reported that their home required major repairs (41.3% [± 2.4]), compared to those who had a higher household income (33.3% [± 2.7]).

¹ The Canadian population data are based on households, while the RHS data refers to individuals, thus comparisons should be interpreted with caution.

Figure 4.3. Condition of Homes and Need for Repairs, RHS 2008/10 (n = 10,428), RHS 2002/03 (n = 10,603), and Survey of Household Spending (SHS) 2009



*Canadian Households 2009 from Survey of Household Spending (SHS) 2009 (Statistics Canada, 2010).

Household Necessities

Virtually all First Nations adults reported having electricity, a cooking stove, and a refrigerator in their home (see Table 4.1). A minority of First Nations adults reported that they did not have the following basic necessities: hot running water (3.4% [± 0.4]), cold running water (2.1% [± 0.4]), or a flush toilet (2.7% [± 0.4]). No change was observed in household amenities since the previous RHS (2002/03; see Table 4.1).

Municipal services such as garbage collection and sewage systems, which are the norm in general Canadian communities, were still lacking for a minority of adults living in First Nations communities. Approximately one-in-ten First Nations adults, (8.0% [± 1.0]) reported that they did not have access to a septic tank or a sewage system (see Table 4.1). Garbage collection was not always available in First Nations communities; almost one-in-five (18.5% [± 3.0]) First Nations adults reported that they did not have access to garbage collection services. There has been no significant change since RHS 2002/03 in the availability of garbage collection services or presence of septic tank/sewage system (see Table 4.1).

Table 4.1. Percentage of First Nations Adults Living in Homes without Household Amenities or Community-based Services

	RHS 2008/10 % [95% CI]	RHS 2002/03 % [95% CI]
Household necessities		
Refrigerator	1.0% [± 0.2]	1.3% [± 0.8]
Stove for cooking	0.8% [± 0.2]	0.7% [± 0.4]
Electricity	0.6% [± 0.2]	0.5% [± 0.4]
Cold running water	2.1% [± 0.4]	3.5% [± 1.3]
Hot running water	3.4% [± 0.4]	3.7% [± 1.5]
Flush toilet	2.7% [± 0.4]	3.5% [± 1.3]
Community-based services		
Septic tank or sewage system	8.0% [± 1.0]	9.1% [± 1.7]
Garbage collection services	18.5% [± 3.0]	21.0% [± 5.9]

Note. CI = confidence interval

Household Safety Equipment

Many adults indicated that their household *did not* have basic safety equipment, such as working smoke detectors (22.6% [± 1.8]), fire extinguishers (53.1% [± 2.4]), and carbon monoxide detectors (78.1% [± 2.6]). No change was observed in safety equipment since the previous RHS.

Telephone, Computer, and Internet Service

There have been significant increases in in-home access to computers and the Internet since RHS 2002/03 (see Table 4.2). Despite this increase, prevalence remains far below that observed in the general Canadian population.

A higher proportion of First Nations adults who reported having an annual household income of \$25,000 or more reported having a computer, an Internet connection, and a telephone with service compared to adults with a lower household income (see Table 4.3).

Table 4.2. Percentage of Adults with Telephone, Computer, or Internet in Home

	RHS 2008/10 [95% CI]	RHS 2002/03	Canadian households 2009
Has a computer (n = 7,339)	60.2[± 2.0]	40.8[± 2.7]	81.7
Connection to the Internet (n = 7,310)	51.8[± 2.2]	29.3[± 2.3]	77.8
Telephone with service (n = 7,384)	82.5[± 1.6]	81.7[± 2.7]	89.3

Note. CI = confidence interval. Canadian data is for households, while the RHS data refers to individuals; thus, the data are not directly comparable but do give an indication of the relative difference. Data for Canadian households are from Statistics Canada (2005).

Table 4.3. Percentage of First Nations Adults Reporting Basic Telecommunications Amenities, by Annual Household Income Level, in RHS 2008/10

	Under \$25,000 % [95% CI]	\$25,000 or over % [95% CI]
Computer (n = 7,339)	44.7 [± 2.4]	75.0 [± 2.4]
Connection to the Internet (n = 7,310)	35.6 [± 2.2]	67.3 [± 2.6]
Telephone with service (n = 7,384)	75.5 [± 2.2]	89.0 [± 2.0]

Note. CI = confidence interval

Water Supply and Quality

The majority of First Nations adults reported that the main water supply for their household is piped in from a local water supply (68.8% [± 2.9]). A minority of adults reported that their household water is trucked in (14.8% [± 2.4]) or drawn from wells (13.3% [± 2.4]; see Table 4.4). There was no significant change in water source between RHS 2002/03 and RHS 2008/10.

More than one-third (35.8% [± 2.4]) of First Nation adults did not perceive their main water supply in their home to be safe for drinking year round. There was no change in perceptions about safe drinking water since the previous RHS (2002/03).

Of First Nations adults who did not perceive their home's drinking water to be safe for drinking year round, 86.1% [± 2.0] reported using bottled water, 14.4% [± 2.2] reported boiling their tap water, 4.2% [± 1.2] reported using water from another house, and 4.1% [± 0.6] reported gathering water from a river, lake or stream.

Table 4.4. Primary Sources of Water Supply

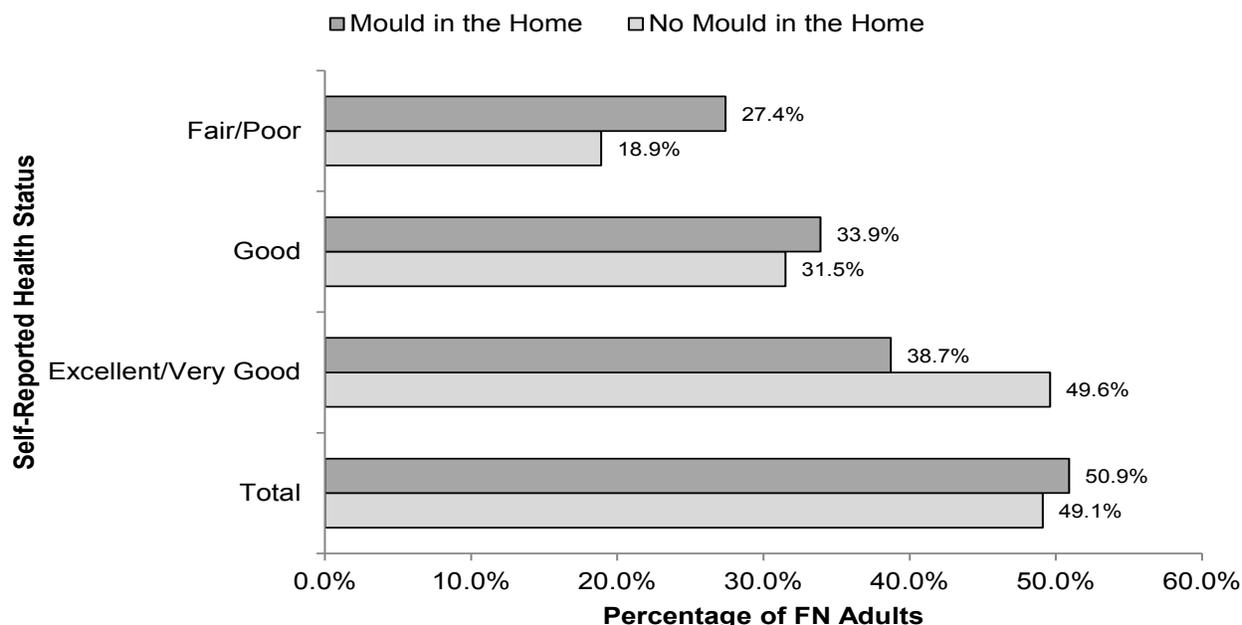
Main supply of drinking water	RHS 2008/10 % [95% CI]
Piped in (local water supply)	68.8 [± 2.9]
Trucked in	14.8 [± 2.4]
Well (individual or shared)	13.3 [± 2.0]
Collect it yourself from a river, lake or pond	0.3 [± 0.2]
Collect it yourself from water plan	0.9 [± 0.5]
From a neighbor's House	0.8 [± 0.4]
Other	1.1 [± 0.4]

Mould and Mildew

Half of First Nations adults are living in homes with mould or mildew (50.9%, [± 2.0]), representing an increase since the previous RHS 2002/03 (44.0% [± 2.3]).

A higher proportion of adults with mould or mildew in their home reported that their health was 'fair or poor' compared to those without mould or mildew in their homes (27.4% [± 2.0] vs. 18.9% [± 1.6], respectively). Conversely, a higher proportion of adults who did not have mould or mildew in their homes reported 'very good or excellent' health compared to those with mould or mildew (49.6% [± 2.2] vs. 38.7% [± 2.4], respectively; see Figure 4.4).

Figure 4.4. Presence of Mould or Mildew in the Home, by Self-reported Health Status



DISCUSSION

Socio-economic status, as measured in part by household income, is an important and widely recognized non-medical determinant of health (WHO, n.d.). Living in poverty is associated with poorer performance on a number of key medical health indicators, including higher rates of chronic disease, higher rates of infant mortality, lower life expectancy, and higher rates of mental health conditions, among others (Statistics Canada & Canadian Institute for Health Information, 2011). Poverty has a cyclical relationship to health in the sense that those who are poor have greater exposure to risk and perhaps less access to care, and those who are unwell may find it more challenging to participate fully in the labour market.

Income levels are much lower for First Nations households than for households in the general Canadian population. Canada's low income cut-offs (LICOs) are typically used to describe families that are living in poverty. The LICOs describe income levels at which families spend a greater proportion of their income on the basic necessities such as shelter and food. For a family of four—and the average size of a First Nations family is 4.2 persons—living in a rural or a small urban region, the LICOs are \$26,579 and \$30,328, respectively. Consistent with existing data that show a high degree of dependence on social assistance and high unemployment on-reserve, many First Nations adults are living in poverty (CMHC, 2011b). Comparisons between household incomes in RHS 2002/03 and RHS

2008/10 reveal no improvements – rather an increase is observed in low income levels. Further, there remain wide disparities in household income between First Nations communities and the general Canadian population.

As evidenced by the RHS data, housing occupancy is relatively high in First Nations communities. It is difficult to ascertain, based solely on RHS data, why the above problem exists; however, an understanding of population demographics and housing policy in First Nations communities can provide some clarity:

- *Economic challenges.* With approximately one-in-three First Nations adults living in households with a total income of less than \$20,000 annually, a large proportion of the population is not likely to benefit from the current home ownership policy, which requires a financial contribution from the resident. High unemployment (27.7%) and use of social assistance are also likely factors in creating large households (Statistics Canada, n.d.).
- *Population demographics.* A rapid growth rate and a relatively younger population, combined with stagnant funding for housing and the existing annual housing shortfall (CMHC, 2004), create a situation where multiple families are living in one house.
- *Temporary relocation.* Relocation due to extensive renovations, including mould remediation, which may be pervasive in some communities, requires

some people to live with family members while their home is under renovation (CMHC, 2011a).

- *Importance of extended family in First Nations culture.* There is a greater propensity among First Nations people than among the general Canadian population to be more inclusive of extended family in living arrangements.

High household membership or over-crowding is linked with various negative outcomes. Crowded housing conditions have been linked with mould; unintentional injuries (Garzon, 2005); transmission of infectious disease (PHAC, 2003); mental health problems; family tension; accelerated home usage; and violence (Statistics Canada, 2003).

More than one-third of adults report that their home requires major repairs. Furthermore, comparisons with previous RHS indicate that the conditions of homes in First Nations communities has worsened in the past 5 years. Both low income and lack of ownership are barriers to undergoing home maintenance (RCAP, 1996). Furthermore, housing policy and construction practices have not always ensured that construction is carried out according to industry standards (AFN, 2010b).

No significant progress has been made in access to a septic tank or sewage system since RHS 2002/03. Disputes over jurisdiction or responsibility can play a role in access to these services. For instance, sewage treatment typically falls under the jurisdiction of a municipality in Canada. On reserve lands, water treatment and water quality are the responsibility of the community, with some financial and policy support from INAC and the Public Health Agency of Canada (INAC, 2007c). This arrangement can lead to confusion over who is responsible for covering the cost of community municipal services, resulting in lack of access to services.

Home fires are a concern among First Nations communities; incidence levels are 2.4 times the national average (CMHC, 2005). Research suggests that having a working smoke detector and a fire extinguisher are precursors to preventing injury due to fire, yet many First Nations households do not have the equipment to help prevent injury due to fire.

The digital divide between the general Canadian population and First Nations remains wide. In comparison to Canadian households in general, First Nations households less often reported having a home computer or Internet. More than four-fifths (81.7%) of all Canadian homes have a computer, and almost the same

number have an Internet connection (77.8%), compared to 60.2% and 51.8% for First Nations households.

In First Nations communities, the band has the primary responsibility for maintaining/improving water treatment and quality, with funds, guidelines, and strategies provided by INAC and Health Canada (INAC, 2007b). Water quality has been a major issue for many First Nations communities. For example, in RHS 2002/03, one in three drinking water systems and one in six wastewater systems in First Nations communities were reported to pose a high risk to water quality and human health (INAC, 2007b). Improvements were made to the situation as a result of the 2002–03 First Nations Water Management Strategy, through which \$600 million in additional funds was provided over five years to address water quality in First Nations communities. Despite reported improvements (INAC, 2007b), as of 2006, 79 of 633 First Nations communities have been on drinking water advisories.

The presence of mould and mildew in homes in First Nations communities is a well-documented health concern (INAC, 2007b; INAC, n.d.a). The health effects associated with living in homes with toxic or black mould include eye, nose, and throat irritation; runny nose; sinus congestion; frequent cold symptoms; increased asthma attacks; and allergic reactions (Redd, 2002). The presence of indoor mould poses the greatest health concern for the elderly, young children, people with compromised immune systems, and those with a history of asthma (WHO, 2009).

CONCLUSIONS

The provision of high-quality housing and the improvement of living conditions in First Nations communities is a complex issue that has been the subject of numerous policies and strategies over the years. The findings from RHS 2008/10 show that there has been little change since RHS 2002/03 on key issues such as crowding, mould, perception of water quality, and household income. In fact, while some indicators have stayed the same, others have gotten worse. For example, there has been no positive change in perceptions of water quality, presence of basic household safety equipment, and access to hot running water. In the meantime, homes have become more crowded, household income has decreased, and mould and mildew is more prevalent than was reported in RHS 2002/03. The above factors are likely to have a great impact on the overall health of First Nation adults.

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Chapter 5

Health Care Access

EXECUTIVE SUMMARY

In this chapter, access to health care, an important determinant of health, is explored among First Nations adults living on reserve and in northern communities. The findings of the First Nations Regional Health Survey (RHS) 2008/10 reveal that 38.6% of First Nations adults felt they had less access to health services than did the general Canadian population, a slight increase from 35.6% in RHS 2002/03. The percentage of First Nations adults who felt they had the same level of access to health services as the general Canadian population increased from 40.8% in RHS 2002/03 to 49.0% in RHS 2008/10. However, the percentage who felt that their access to health services was better than that of the general Canadian population decreased from 23.6% of First Nations adults in RHS 2002/03 to 12.4% in RHS 2008/10. Further, 60.4% of First Nations adults did not regularly make use of traditional medicine, with more women than men reporting difficulties accessing traditional medicine. More First Nations women than men reported having difficulty accessing Non-Insured Health Benefits (NIHB).

Regarding illness/disease prevention behaviours, First Nations women were more actively engaged in screening than men; however, low prevalence of breast self-examinations and of mammograms were observed. Among First Nations women, 40.0% had never performed a breast self-examination, 59.0% had never had a mammogram, and 5.0% had had a mammogram more than five years prior to the survey. Unlike mammogram screening, women reported having Pap smears on a more regular basis; only 9.7% reported that they had never had a Pap smear and only 16.4% had not had a Pap smear for more than three years prior to the survey. Among First Nations men, 48.3% reported that they had undergone blood sugar screening, and 23.4% of First Nations men indicated that they had undergone a prostate check within the year prior to the survey. Additionally, 38.1% of First Nations adults had undergone cholesterol screening.

KEY FINDINGS

- 38.6% of First Nations adults perceived that they have less access to health services than the general Canadian population. Almost half (49.0%) of all First Nations adults perceived that they have the same level of access to health services as the general Canadian population. A small percentage (12.4%) perceived their access to health services as better than that of the general Canadian population.
- Just over a third (34.8%) of First Nations adults reported difficulties accessing NIHB health services. A higher proportion of females reported difficulties accessing NIHB compared to males (37.6% vs. 32.1%).
- The majority (60.4%) of First Nations adults reported that they did not make use of traditional medicine.
- Significantly more First Nations women (27.7%) than men (19.4%) cited difficulties accessing traditional medicine.
- Regarding illness/disease prevention behaviours, First Nations women reported more screening activities than men. For example, fewer than half (48.3%) of men reported that they had undergone blood sugar screening, compared to 60.4% of women.
- 40% of women had never performed a breast self-examination and 59% had never had a mammogram.

INTRODUCTION

Access to health services is an important determinant of health among Canadians (Health Council of Canada, 2005; Public Health Agency of Canada, 2010). In this chapter, access to health care among First Nations adults living on reserve and in northern communities is explored in relation to four areas: traditional medicine, health services, health benefits, and health promotion.

According to the advisory committee for the development of a First Nations public health framework, First Nations health promotion, protection, and disease prevention includes traditional healers and their medicines (Assembly of First Nations [AFN], 2006). In a community-based research project report by the Saskatoon Aboriginal Women's Health Research Committee (2004), First Nations women indicated that access to traditional medicine is important to their wholistic¹ health and well-being. Skye (2006) found that the availability and use of traditional medicine affirms cultural identity, which in turn positively affects the overall health and well-being of the client. There is evidence to suggest that the more individuals learn about and connect with their traditional culture, the stronger their coping ability will be for other negative encounters and events (Jackson & Reimer, 2005; Walters & Simoni, 2002). The importance of traditional medicine as a means of improving the health and quality of life for First Nations people is increasingly being recognized (First Nations Health Council, 2010).

Since RHS 2002/03, additional questions concerning traditional medicine were added to the survey to explore how First Nations people may be complementing Western health services with traditional medicine, and vice versa. Therefore, it is vital to understand access to health care in terms of both traditional medicine and Western medicine among First Nations. High-quality health care services are a social determinant of health and a basic human right (Mikkonen & Raphael, 2010). According to the Canada Health Act, "accessibility" refers to the provision of uniform access to health services in a way that is free of financial barriers. Essentially, when it comes to access to health care, no one should be discriminated against on the basis of age, health status, or income.

In light of the fundamental importance of access to health services for overall health, the present chapter explores the extent to which First Nations adults living in First Nations communities are able to access both traditional

and non-traditional health services and benefits. Their participation in health promotion activities, such as screening for certain diseases, is also explored.

METHODS

- The RHS 2008/10 asked First Nations adults (aged 18 and up) living on reserve and northern communities to report whether they use traditional medicine. Additionally, a series of questions regarding the characteristics of their access to health care was posed:
- Have you had any difficulties when trying to access traditional medicines?
- How would you rate the level of access to health services available to you compared to Canadians generally?
- During the past 12 months, have you experienced any barriers to receiving health care?
- Have you had any difficulties accessing any of the health services provided through the Non-Insured Health Benefits Program (NIHB) provided to status First Nations through Health Canada?
- Over the past 12 months how often has your primary healthcare provider (family physician/RN/nurse practitioner) changed?

Potential links between health care access and other variables included the RHS 2008/10 were also assessed, including level of education, employment and preventative health care.

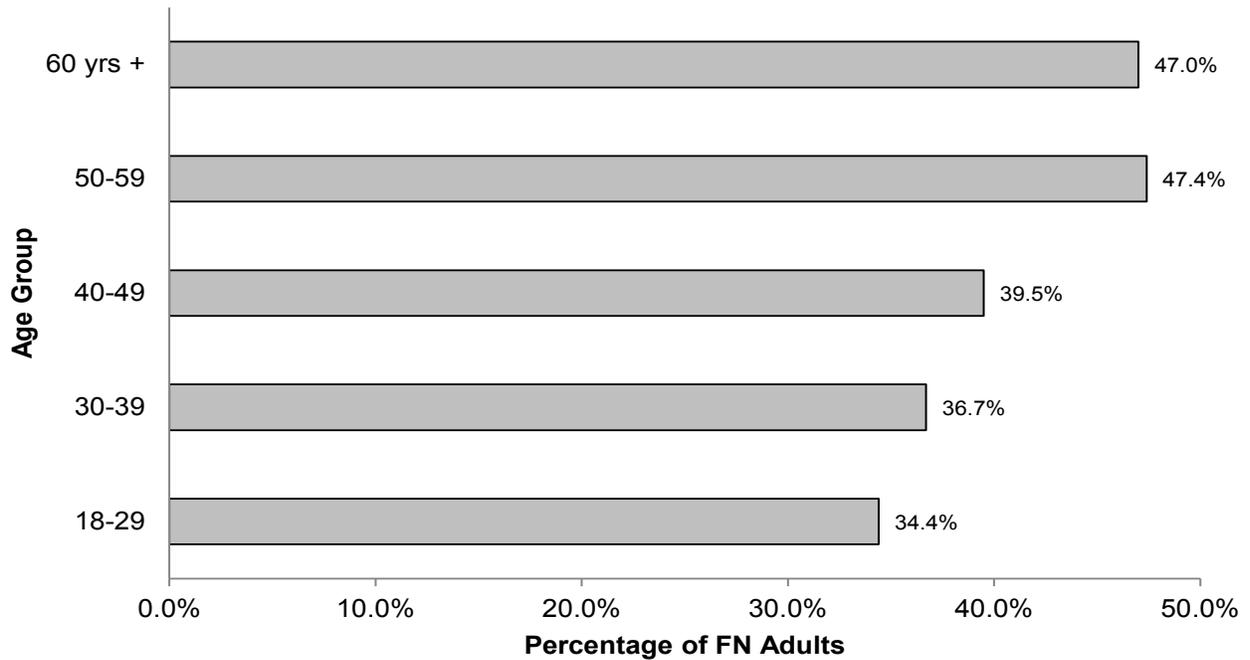
RESULTS

Use of Traditional Medicine

The majority (60.4%) of First Nations adults reported that they did not make use of traditional medicine. There was no difference between men and women in the use of traditional medicine (39.2% for men vs. 40.1% for women, 95% CIs [36.9, 41.5] and [37.9, 42.4], respectively). Older First Nations adults reported accessing traditional medicine more often than younger adults (see Figure 5.1). For example, of those 18 to 29 years of age, 34.4% reported accessing traditional medicine, compared to 47% of those aged 60 years or older (95% CIs [31.6, 37.4] and [44.1, 49.9], respectively).

¹ The word "holism" is written as "wholism" in keeping with a First Nation Elder's teaching to denote "whole" as opposed to "hole."

Figure 5.1. Percentage of First Nations Adults who Reported Using Traditional Medicine, by Age Group (n = 10,703).

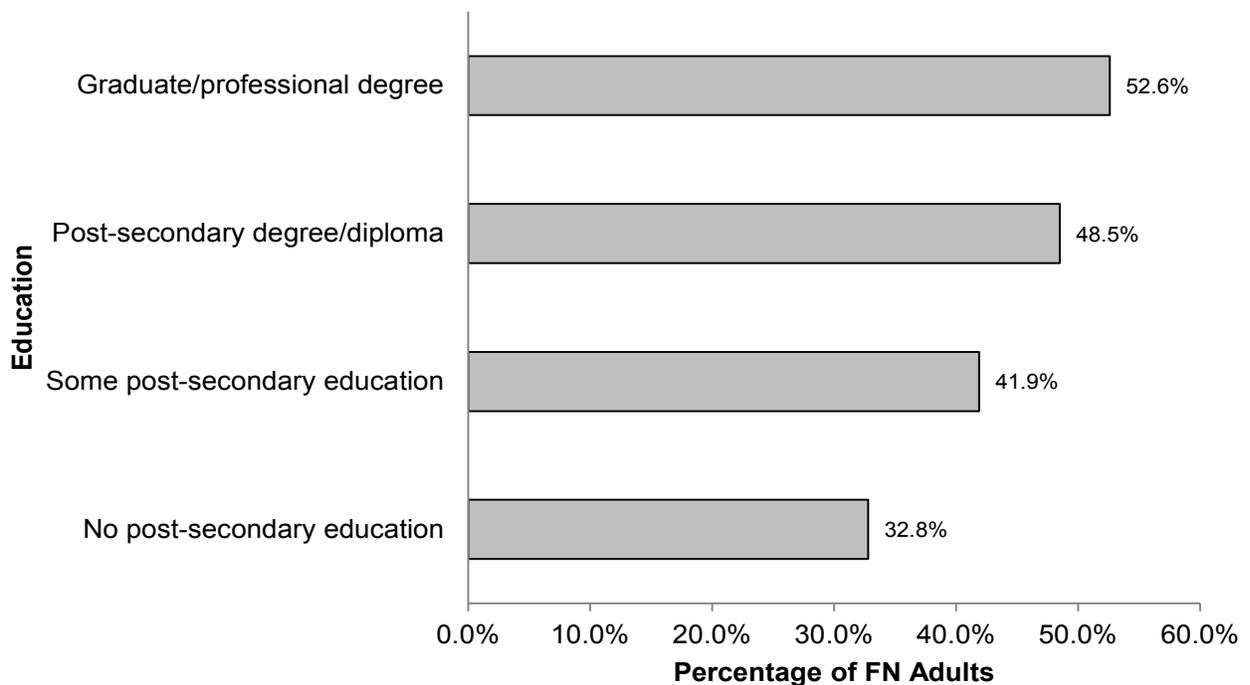


Education and the Use of Traditional Medicine

The use of traditional medicine was higher among those with a higher level of education, with 33.6% of

those with no post-secondary education and 51.6% of those with a graduate-level education or professional degree accessing traditional medicine (95% CIs [31.3, 36.0] and [42.1, 61.0], respectively; see Figure 5.2).

Figure 5.2. Percentage of First Nations Adults who Reported Using Traditional Medicine, by Level of Education (n = 10,481).



Employment and the Use of Traditional

A slightly higher percentage of those First Nations adults who were employed than of those who were not employed used traditional medicine (42.1% vs. 37.4%, 95% CIs [39.7, 44.3] and [35.3, 39.6], respectively). Although not statistically significant, the use of traditional medicine increased among First Nations adults with higher personal incomes.

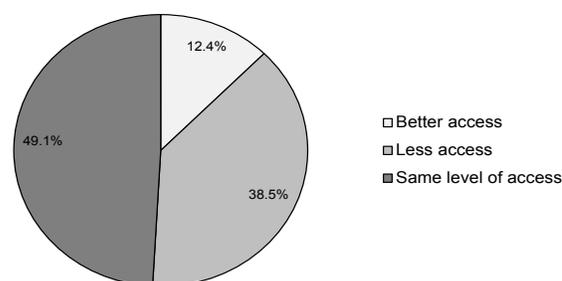
Accessing Traditional Medicine

Almost one-quarter (23.5%) of First Nations adults who used traditional medicine reported that they had difficulties accessing traditional medicine. Significantly more women than men reported difficulties accessing traditional medicine (27.7% vs. 19.4%, 95% CIs [25.1, 30.5] and [16.9, 22.1], respectively), and more women reported difficulties for each of the access barriers. A significantly higher percentage of First Nations women than men reported difficulties affording traditional medicine (5.5% vs. 1.9%, 95% CIs [4.3, 7.0] and [1.3, 2.9], respectively). As well, a significantly higher percentage of women reported not knowing where to obtain traditional medicines (11.7% vs. 6.5%, 95% CIs [9.8, 13.8] [5.0, 8.2]). Finally, although these findings are not statistically significant, more women than men (8.0% vs. 6.6%, 95% CIs [6.7, 9.6] and [5.3, 8.3]) indicated that it was too far to travel to access traditional medicine, and more women than men (7.1% vs. 4.4%, 95% CIs [5.7, 8.7] and [3.2, 6.0]) said they did not know enough about accessing traditional medicine.

Access to Health Services

Almost 40% (38.6%) of all First Nations adults reported that they felt that they had less access to health services than do adults in the general Canadian population, a slight increase from the 35.6% who reported the same in RHS 2002/03 (see Figure 5.3). The percentage of First Nations adults who felt they had the same level of access to health services as the general Canadian population increased since RHS 2002/03 (40.8% in RHS 2002/03 vs. 49.0% in RHS 2008/10). Only 12.4% rated their access to health services as better than that of the general Canadian population. This may be of concern, given that 23.6% of the First Nations adults in RHS 2002/03 rated their access to health services as being better than that of the general Canadian population.

Figure 5.3. Percentage of First Nations Adults who Rated their Perceived Access to Health Services as Better, Worse, or the Same as that of Other Canadians (n = 9,073)



Employment and Barriers to Accessing Health Care

There were very few differences in the responses of First Nations adults who were employed and those who were unemployed regarding barriers to accessing health care, with the exception of barriers pertaining to child care costs and transportation. Of the First Nations adults who were unemployed, 7.4% could not afford child care, 20.9% could not afford transportation, and 22.4% were unable to arrange transportation. In contrast, among employed First Nations adults, just 4.9% could not afford child care, 12.0% could not afford transportation, and 12.3% were unable to arrange transportation (95% CIs [6.4, 8.6], [19.1, 22.9], [20.5, 24.5], [4.1, 5.9], [10.5, 13.5], and [10.8, 13.9], respectively).

Education and Barriers to Accessing Health Care

A higher prevalence of First Nations adults with a post-secondary education reported the following barriers to accessing health care compared to those with no post-secondary education: health services were not culturally appropriate; difficulties were had obtaining traditional care; waiting lists were too long; they were unable to directly afford care; NIHB coverage was lacking; and NIHB approval for services was denied (see Table 5.1). Moreover, 18.2% of First Nations adults with less than a post-secondary education reported being unable to arrange transportation, compared to 12.4% of those with post-secondary education (95% CIs [16.4, 20.1] and [10.6, 14.4], respectively).

Table 5.1. Percentage of First Nations Adults Reporting Barriers to Accessing Health Care, by Level of Education

	No post-secondary education	Some post-secondary education	Post-secondary degree	Graduate/Professional degree
Barriers related to First Nations-specific need				
Felt service was not culturally appropriate	12.7	17.5	18.2	20.9
Felt health care provided was inadequate	16.1	22.9	24.1	19.0
Barriers related to geography and availability of services				
Health professionals not available	20.4	23.9	25.3	13.1
Health facility not available	10.7	11.3	12.6	4.8
Difficulty getting traditional care	11.1	13.1	16.4	14.4
Service was not available in my area	14.3	16.0	18.1	12.4
Wait was too long	35.3	37.1	43.5	31.6
Economic barriers				
Could not afford direct cost of care, service	12.3	17.3	25.3	12.1
Could not afford child care costs	5.7	7.4	5.8	2.6
Could afford transportation cost	15.9	17.3	16.7	8.3
Systemic barriers				
Unable to arrange transportation	18.1	21.4	12.8	4.0
Not covered by NIHB	13.1	23.2	32.9	23.1
Prior approval for services under NIHB was denied	10.4	17.4	23.9	21.3
Chose not to see health professional	10.8	13.5	14.3	15.2

Health Benefits

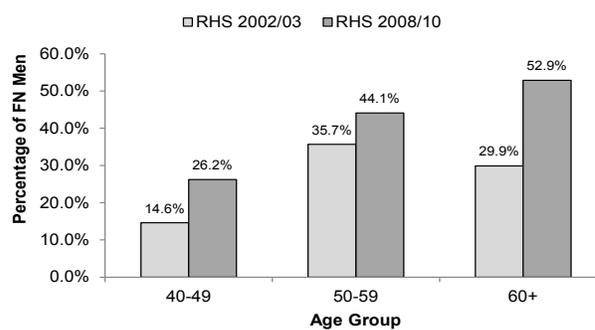
Just over a third (34.8%) of First Nations adults reported having difficulties accessing NIHB health services. Of these adults, medication (12.9%), dental care (12.4%), and vision care (e.g., glasses) (8.6%) were reported to be the most difficult services to access. More women than men reported having difficulty accessing NIHB services (37.6% [±2.3] vs. 32.1% [±2.2], respectively). Specifically, 15.9% of women and 10.0% of men said they had difficulty getting access to medication; 15.2% of women and 9.7% of men said they had difficulty accessing dental care; and 10.4% of women and 6.8% of men said they had difficulty accessing vision care services (95% CIs [35.3, 40.0], [29.9, 34.4], [14.4, 17.6], [8.7, 11.6], [13.4, 17.2], [8.4, 11.2], [9.2, 11.8], and [5.8, 7.9], respectively). These findings are similar to the findings of RHS 2002/03. Regarding employment and access to health services, First Nations adults who were employed reported having more difficulty accessing dental care than those who were not employed (14.9% vs. 10.2%, 95% CIs [13.1, 16.7]) and [8.8, 11.8], respectively).

Health Promotion: Screening for Diseases and Conditions

More women than men reported undergoing screening tests, including complete physical exams, regular vision

or eye exams, blood sugar tests, and blood pressure tests (see Table 5.2). Only 48.3% (95% CI [46.0, 50.7]) of men, compared to 60.4% (95% CI [58.6, 62.2]) of women, reported that they had undergone blood sugar screening. Regarding prostate health, 23.4% of First Nations men reported that they had undergone a prostate check in the year prior to the survey. Figure 5.4 demonstrates an increase in the percentage of First Nations men having undergone a prostate/digital rectal exam since RHS 2002/03. Finally, 38.1% of First Nations adults indicated that they had had their cholesterol checked compared to 35.1% in 2002/03.

Figure 5.4. Percentage of First Nations Men Reporting Undergoing a Prostate Check by Age Group



Although First Nations women reported being more actively engaged in screening, some data suggest low

rates of breast self-examinations and mammograms. Forty percent of First Nations women indicated they had never performed a breast self-exam, while 30.1% performed this exam on a monthly basis. Almost 60% (59.0%) of all First Nations women reported never having had a mammogram,

and almost 10% (9.7%) of First Nations women reported that they had never had a Pap smear, a figure similar to that reported in 2002/03 (10.6%). A further 16.4% of women reported having had this test more than three years prior to the survey compared to 13.8% in 2002/03.

Table 5.2. Percentage of First Nations Adults Reporting Undergoing Various Screening Test

	Male % [95% CI]	Female % [95% CI]
Complete physical examination	35.4 [32.9, 37.9]	45.8 [43.7, 48.0]
Regular vision or eye exam	48.8 [46.5, 51.2]	59.3 [57.5, 61.2]
Blood sugar test	48.3 [46.0, 50.7]	60.4 [58.6, 62.2]
Blood pressure test	59.5 [57.0, 61.9]	68.3 [66.6, 69.9]

DISCUSSION

Four areas emerged from the survey results that warrant discussion: the use of traditional medicine, changing perspectives on accessing health care services, using a gender based perspective to better understand health care access among women and men, and the need for health promotion among First Nations.

Traditional medicine is viewed as beneficial to the health and well-being of First Nations people. First Nations people are using traditional medicine (National Aboriginal Health Organization, 2008) and want access to traditional medicine (Canadian Aboriginal AIDS Network, 2005). When it was made available as part of community health services, traditional medicine was consistently used by First Nations people (First Nations Health Society, 2010). However, the majority of First Nations adults in RHS 2008/10 reported that they did not use traditional medicine. It may be that the term “traditional medicine” in the survey, as opposed to “traditional healing,” has too narrow a focus. Additionally, there is likely a need to consider the complexity of traditional healing with respect to individual, family, and community dimensions.

The findings pertaining to accessing health services point to some differences between the results of RHS 2002/03 and the results of RHS 2008/10. Currently, more First Nations adults reported that they had the same access to health care as the general Canadian population, and fewer First Nations adults reported that they had better access to health services than the general Canadian population. However, these results should be interpreted with caution. These findings are based on self-reported information about accessing health services. As such, the findings are not indicative of actual access to health services. It would be useful to explore why these changing perspectives are occurring among First Nations.

Gender matters in health and health care and is a determinant of health status (Mikkonen & Raphael, 2010). The RHS 2008/10 results revealed that First Nations women were more likely to report difficulties accessing traditional medicine and accessing NIHB services than were First Nations men. It is important to understand whether variations in effectiveness are rooted in differing patterns of use of those services between men and women or are caused by the way services are structured—or by some combination of the two (Wilkins, Payne, Granville, & Branney, 2008). It is widely known that there are differences between men and women in the incidence and prevalence of most health conditions. Further research on gender and help-seeking behaviour, and gender and experience of services, is required to better tailor health programs to First Nations adults (Wilkins et al., 2008; World Health Organization, 2009).

Although more First Nations women than men are engaged in preventive screening measures, such as complete physical exams and tests for blood sugar and cholesterol, potential concerns remain with respect to breast self-examinations, mammograms, and Pap smears. Further research is required concerning First Nations men and their participation in health promotion activities, such as complete physical exams, regular vision or eye exams, blood sugar testing, blood pressure tests, and prostate exams. There is a need for health promotion, including screening, among First Nations peoples, particularly in relation to obesity, obesity-related comorbidities, diabetes, hypertension, and cardiovascular disease (Bruce, Riediger, Zacharias, & Young, 2010).

CONCLUSIONS

The RHS is invaluable as it offers the most up-to-date data about First Nations adults and their access to health care relative to four areas: traditional medicine, health

services, health benefits, and health promotion. These four areas remain important for a broad understanding of health care access. In the future, it would be helpful to expand the notion of traditional medicine to the more inclusive concept of traditional healing. This would foster a more wholistic understanding of access to health services by First Nations.

With respect to health services, some emerging trends warrant further investigation. For example, why are increasing numbers of First Nations viewing their access to health services as in keeping with that of other Canadians, while at the same time fewer First Nations are reporting better health care access compared to Canadians?

Lives are fundamentally shaped by gender, thus it is important to further understand how men's and women's access to health care differ. Why are First Nations men at the margins of health promotion and, in particular, health screening? How can health screening better serve First Nations men and women? Further research into the questions arising from the RHS 2008/10 results pertaining to health care access is now necessary.

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Chapter 6

Physical Activity and Nutrition

EXECUTIVE SUMMARY

Over the past 25 years, there has been an increase in the proportion of overweight and obese Canadians. This chapter presents results from the First Nations Regional Health Survey (RHS) 2008/10 on physical activity and nutrition within a broader cultural perspective. The findings illustrate that a high proportion of First Nations adults living on-reserve and in northern communities are overweight or obese. In addition, approximately one-quarter (25.2%) of First Nations adults were physically inactive and only one-third of adults (30.6%) ‘always or almost always’ consumed a nutritious and balanced diet. An association is demonstrated between a healthy lifestyle and various factors, highlighting the importance of adopting culturally appropriate, healthy living strategies that incorporate physical activity and a nutritious, balanced diet.

KEY FINDINGS

- 1.4% of First Nations adults are underweight, 24.2% are of normal weight, 34.2% are overweight, 34.8% are obese, and 5.4% are morbidly obese. These findings have not changed considerably since RHS 2002/03.
- 46.4% of First Nations adults are inactive, 28.3% are moderately active, and 25.2% are active. A higher proportion of males reported being active compared to females (32.8% vs. 17.4%).
- 30.6% of First Nations adults 'always or almost always' eat a nutritious and balanced diet, while 51.8% do so 'sometimes', 14.5% do so 'rarely', and 3.1% 'never' eat a nutritious balanced diet.
- The proportion of adults who are physically active decreased with age, while those consuming a nutritious, balanced diet 'always/almost always' and 'sometimes' increased with age.
- Being physically active and consuming a nutritious balanced diet was associated with perceiving oneself as healthy, having a lower body mass index, consuming traditional foods, feeling balance in one's life, feeling a sense of control over one's life, and perceiving many strengths within one's community.

INTRODUCTION

The proportion of Canadians who are overweight or obese has increased in the past 25 years (Tjepkema, 2006), a pattern that has also been observed in both developed and developing countries (World Health Organization [WHO], 2000). The proportion of adults who are overweight or obese has been consistently higher among First Nations than among the general Canadian population (Katzmarzyk & Malina, 1998; Tjepkema, 2002). Moreover, First Nations females report chronic diseases such as heart disease and stroke more often than females in the general Canadian population (Dion Stout, 2005).

Naturally, certain chronic diseases are associated with obesity, and non-communicable chronic diseases are a major cause of death (WHO, n.d.). Three preventive factors—nutritious and balanced diet, physical activity, and avoidance of tobacco use—play a significant role in reducing chronic disease (WHO, n.d.). Although certain factors, including energy consumption from diet and energy expenditure from activity, are associated with obesity, so too are various environmental and genetic factors (Beamer, 2003; Gauthier, 2008).

Physical inactivity is an important public health concern given that it is a modifiable risk factor for various chronic diseases, including cardiovascular disease, type 2 diabetes, osteoporosis, hypertension, cancer (in particular, colon and breast cancers), obesity, and functional limitation with aging (Warburton, Whitney, & Bredin, 2006). Regular physical activity has also been shown to have a positive impact on mental health by reducing anxiety, depression, and tension. In Canada, physical activity trend data have shown an increase over the last 20 years in the participation levels of leisure time among the general adult population (Craig, Russell, Cameron, & Bauman, 2004); however, participation rates in more recent years appear to have stabilized. Lower rates of physical activity continue to be of concern among certain subpopulation groups, in particular, females, older adults, and lower-income groups (U.S. Department of Health and Human Services, 1996). Recent data from the Canadian Community Health Survey, 2007–2008, indicated that fewer than half (48%) of Canadians 20 years or older were at least moderately active, equivalent to at least 30 minutes of moderate-to-vigorous activity daily (Canadian Fitness and Lifestyle Research Institute, 2009). More specifically, the results indicated that being at least moderately active was more likely among males and that activity levels increased with increasing education and household income but decreased with age (Canadian Fitness and Lifestyle Research Institute, 2009).

Recently, the Canadian Society for Exercise Physiology developed a revised set of guidelines for physical activity levels among adults (Tremblay et al., 2011). According to these guidelines, adults aged 18 to 64 years should aim to accumulate 150 minutes of moderate-to-vigorous physical activity per week. In addition, adults should incorporate muscle-strengthening activities twice a week (Tremblay et al., 2011). To date, most of the information on adult physical activity levels has been primarily based on self-reported data. However, a recent Canadian study using accelerometers to measure activity reported that the proportion of adults who performed 150 minutes of moderate-to-vigorous physical activity per week was very low (Colley et al., 2011).

The concept of energy balance works on the notion that energy expenditure should equal energy consumption. Canadians, however, appear to have a net positive energy balance, which occurs when individuals consume more energy from food than they expend in activity, thus contributing to the trend of obesity (Tjepkema, 2005). A national study of dietary habits in Canada indicated that the general Canadian population was not consuming a nutritious, balanced diet (Statistics Canada, 2006). This nutritional study indicated that over one-quarter of Canadians aged 31 to 50 years consumed more than 35% of their total calories from fat, representing an increased risk to health. Roughly half of all adults did not consume the recommended daily minimum of five servings of vegetables and fruit; more than two-thirds of Canadians aged 30 or older did not consume the recommended minimums of dairy servings; and foods outside of the four major food groups represented about one-fifth of all caloric intake (Statistics Canada, 2006). Using this same data source, First Nations females aged 19 to 30 years living outside of First Nations communities had a higher average daily caloric intake than did females in the general Canadian population (Statistics Canada, 2006). There were also differences between Aboriginal and non-Aboriginal age and gender groups in the consumption of certain food groups; for example, Aboriginal men ate fewer servings of dairy, and Aboriginal women ate fewer servings of fruits, vegetables, and grain, and more servings of foods outside of the four major food groups (Statistics Canada, 2006).

Although risk factors for certain chronic diseases appear at the population level, disparities appear based on gender, age, income, education, and ethnicity. For example, First Nations adults, particularly women, are consistently more overweight and obese compared to the overall Canadian population (Katzmarzyk & Malina, 1998; Tjepkema, 2002). This chapter examines physical

activity and aspects of nutrition and their association with body mass among the First Nations population and puts forward recommendations to help guide the shaping of personal and national strategies for healthy living.

METHODS

The results described in this chapter are from the food and nutrition and physical activity sections of RHS 2008/10. The analysis focused on the associations between physical activity and nutrition, within a broader cultural perspective, incorporating aspects of First Nations spiritual, emotional, mental, and physical well-being, social support, and the First Nations community.

The measures used that have been calculated or derived in the analyses of this chapter are summarized below. For each of these analyses, sample weights were applied and statistical significance was tested using 95% confidence intervals.

Body mass index (BMI) was calculated using the following formula:

$$\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m)}^2}$$

For this analysis, BMI was classified according to standard Canadian guidelines (Health Canada, 2003). Individuals with a BMI less than 18.5 kg/m² were considered under-weight, 18.5 to 24.9 kg/m² were normal weight, 25 kg/m² to 29.9 kg/m² were overweight, 30 kg/m² to 39.9 kg/m² were obese, and 40 kg/m² and higher were considered morbidly obese

Level of physical activity was based on total energy expenditure (EE), calculated using the following formula:

$$\text{EE} = \sum (\text{Ni} * \text{Di} * \text{METi} / 365 \text{ days})$$

Ni = number of occasions of activity i in a year,
Di = average duration in hours of activity i, and
METi = a constant value for the
metabolic energy cost of activity i.

Frequency and duration of physical activities were reported for the 12 months prior to the survey, and the metabolic equivalent value (MET value) of each activity was independently established (Ainsworth et al., 2000).

For this analysis, adults with energy expenditures of less than 1.5 kcal/kg/day were considered to be inactive; those with energy expenditures between 1.5 kcal/kg/day and 2.9 kcal/kg/day were considered to be moderately active; and those with energy expenditures of 3 kcal/kg/day or greater were considered to be active.

RESULTS

In RHS 2008/10, 1.4% of First Nations adults were under-weight and 24.2% were normal weight. Roughly one-third (34.2%) of First Nations adults were overweight, 34.8% were obese, and 5.4% were morbidly obese. These findings have not changed considerably since RHS 2002/03 (First Nations Information Governance Committee, 2005). In comparison, 38.9% of Canadians aged 20 to 64 years were normal weight, 36.1% were overweight, 20.3% were obese, and 2.7% were morbidly obese (Tjepkema, 2006). A higher percentage of First Nations males compared to females were overweight (36.8% vs. 31.6%, respectively), while a lower percentage of First Nations males than females were morbidly obese (4.3% vs. 6.6%, respectively). A higher percentage of First Nations adults aged 18 to 29 years were obese compared to older First Nations adults.

Physical Activity

Prevalence

Slightly fewer than half of First Nations adults were inactive (46.5%); 28.2% were considered moderately active, and 25.2% were considered active. A higher proportion of First Nations males were inactive compared to females (32.8% vs. 17.4%). Rates of activity generally decreased with age; 33.2% of adults 18 to 34 years were active, compared to 23.6% of adults 35 to 54 years and 11.9% of adults 55 years and over.

Type of activity

Walking was the most frequently reported method of physical activity participated in during the year prior to RHS 2008/10, by 82.1% of First Nations adults. This was followed by gardening or yard work (35.0%), fishing (32.2%), berry picking or other food gathering (28.3%), and swimming (27.1%). Fewer than one-quarter of First Nations adults reported that they participated in using weights or exercise equipment (24.6%); dancing, including aerobic, traditional, modern, (22.7%); running or jogging (22.6%); hunting or trapping (22.1%); hiking (19.2%); bicycling or mountain biking (18.0%); or competitive or team sports, such as hockey, basketball, baseball, lacrosse, and tennis (17.5%). Less than one-sixth of First Nations adults reported that they participated in golf (14.9%), skating (11.8%), bowling (11.2%), canoeing or kayaking (8.3%), aerobics or fitness classes (6.3%), snowshoeing (4.8%), skiing or snowboarding (4.2%), or martial arts (2.4%). Compared to RHS 2002/03, participation rates in most activities decreased,

with the exception of snowshoeing, using weights or exercise equipment, golf, skiing, and martial arts.

Table 6.1 summarizes the gender differences associated with participating in various physical activities. According to the results, a significantly higher proportion of First Nations males reported that they participated in hunting or trapping, fishing, running or jogging, hiking, bicycling or mountain biking, skating, skiing or snowboarding, competitive or team sports, weights or exercise equipment, canoeing or kayaking, golf,

snowshoeing, or martial arts. In contrast, a significantly higher proportion of First Nations females reported that they participated in walking, dancing, berry picking or other food gathering, or aerobics or fitness classes.

Walking was the most frequently reported physical activity across all age categories. Participation in physical activities generally decreased as age increased, with the exception of gardening or yard work, which increased with age until age 60 and then declined.

Table 6.1. Participation in Physical Activity, by Gender

	Participation in physical activity 12 months prior to survey		
	Total %	Males %	Females %
Walking	82.1	80.4	83.8*
Gardening, yard work	35.0	37.1	32.9
Fishing	32.2	44.1*	20.0
Berry picking or other food gathering	28.3	25.4	31.4*
Swimming	27.1	26.0	28.3
Weights, exercise equipment	24.6	30.9*	18.1
Dancing (aerobic, traditional, modern, etc.)	22.7	16.9	28.7*
Running or jogging	22.6	26.5*	18.6
Hunting, trapping	22.1	35.6*	8.1
Hiking	19.2	24.4*	13.8
Bicycling or mountain biking	18.0	22.7*	13.2
Competitive or team sports (e.g., hockey, basketball, baseball, lacrosse)	17.5	23.5*	11.2
Golf	14.9	19.7*	9.9
Skating	11.8	16.9*	6.6
Bowling	11.2	10.4	12.1
Canoeing/kayaking	8.3	11.7*	4.8
Aerobics/Fitness classes	6.3	3.8	9.0*
Snowshoeing	4.8	6.8*	2.7
Skiing/Snowboarding	4.2	5.2*	3.2
Martial arts	2.4	3.5*	1.3

* Indicates a significantly higher proportion

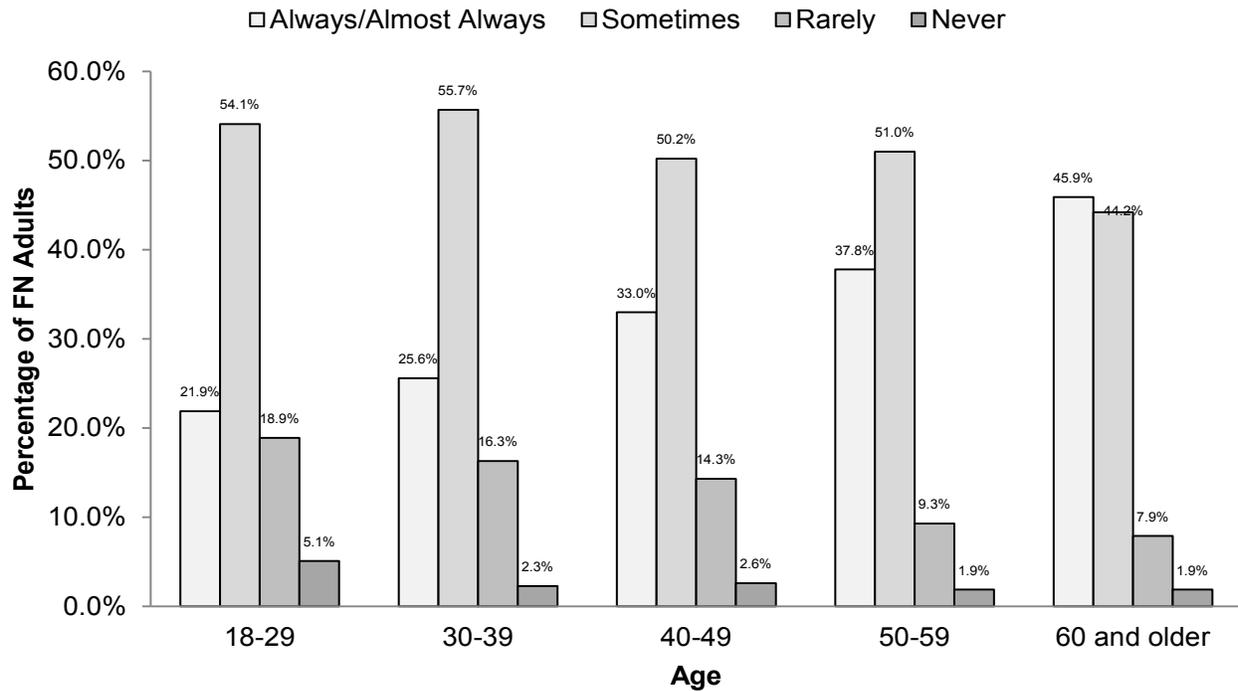
Nutrition

Frequency of eating nutritiously

Fewer than one-third (30.6%) of First Nations adults reported that they “always” or “almost always” eat a nutritious, balanced diet, while 51.8% only “sometimes” do. The remaining proportion of First Nations adults either “rarely” (14.5%) or “never” (3.1%) eat a balanced and nutritious diet. The proportion of First Nations adults who reported “always” or “almost always” eating a nutritious and balanced diet was slightly lower

in RHS 2008/10 compared to RHS 2002/03, while the proportion that reported they “rarely” do so increased slightly between RHS 2002/03 and RHS 2008/10. The proportion of adults who reported that they “always” or “almost always” eat a nutritious and balanced diet generally increased with age (see Figure 6.1).

Figure 6.2. Proportion of First Nations Adults Reporting Consuming a Balanced, Nutritious Diet, by Age



Type of food consumed

Table 6.2 summarizes the frequency of consumption of particular food items. A higher proportion of First Nations males than females drank soft drinks or consumed fast food such as burgers, pizza, hot dogs, or French fries at least once a day. As age increased, frequent consumption (at least once a day) of soft drinks and fast food decreased.

Table 6.2. Proportion of First Nations Adults Reporting Consuming Particular Food Items, by Frequency of Consumption

	Several times a day %	Once a day %	Few times a week %	Once a week %	Never/ hardly ever %
Milk and milk products (e.g., yogurt, cheese)	23.5	34.9	24.4	7.7	9.5
Protein (beef, chicken, pork, fish, eggs, beans, tofu)	32.1	42.0	21.6	3.5	0.8
Vegetables	26.8	36.1	26.7	6.2	4.2
Fruit (excluding fruit juice)	27.9	28.7	29.1	9.2	5.1
Bread, pasta, rice, and other grains	45.3	33.3	17.4	3.2	0.9
Juice	33.8	24.4	21.2	7.9	12.7
Soft drinks/pop	20.9	18.4	25.7	13.7	21.4
Fast food (e.g., burgers, pizza, hotdogs, French fries)	4.9	6.2	29.3	33.6	26.0

Sharing traditional foods

More than one-quarter (27.9%) of First Nations adults reported that someone in their household had “often” shared traditional foods with them in the 12 months prior to the survey. An additional 57.6% reported that this had happened “sometimes,” and 14.4% reported that it had “never” happened. Table 6.3 summarizes the frequency of consumption of particular traditional food items.

Table 6.3. Proportion of First Nations Adults Reporting Consuming Particular Food Items, by Frequency of Consumption

	Not at all %	A few times %	Often %
Land-based animals (moose, caribou, bear, deer, bison, etc.)	22.3	51.3	26.4
Small game (rabbit, muskrat, etc.)	68.2	24.6	7.2
Freshwater fish	28.9	48.8	22.3
Saltwater fish	69.7	23.8	6.4
Other water-based foods (shellfish, eels, clams, seaweed, etc.)	77.2	19.4	3.5
Sea-based animals (whale, seal, etc.)	97.1	2.6	0.3
Game birds (goose, duck, etc.)	58.6	32.6	8.7
Berries or other wild vegetation	23.0	58.4	18.6
Bannock/Fry bread	8.0	54.7	37.3
Wild rice	62.2	31.8	6.0
Corn soup	72.1	22.2	5.7

Physical Activity and Nutrition: A Cultural Perspective

Physical Activity

Due to the high prevalence of inactivity or moderate activity (74.7% of the First Nations adult population), it is important to develop an understanding of key individual, social, and community factors associated with greater physical activity. For this analysis, factors related to the individual were divided into two categories: factors related to general health and factors related to mental health.

According to RHS 2008/10, a higher proportion of adults were active who:

- were in excellent health (37.7% were active), compared to those who were in very good (28.9%), good (22.5%), fair (19.9%) or poor health (4.8%);
- had lower body mass index scores: underweight (28.1% were active), normal weight (28.9%), overweight (26.6%), obese (22.7%), and morbidly obese (18.6%);
- did not have a chronic health condition (30.4% were active), compared to those who had at least one health condition (22.3%);
- consumed fruit and vegetables at least once per day, compared to those who consumed them once a week or less often;
- had traditional food shared with their household more often: those who often shared food (29.3% were active), sometimes shared food (24.4% were active), and never shared food (21.7%);

- consumed traditional land based animals, game birds, berries and other wild vegetation often or a few times in the past year, compared to those who did not.

A further breakdown of the factors related to mental health were also examined in association with activity level. A higher proportion of adults were physically active who:

- reported greater feelings of control over their own life (i.e., higher mastery scores), compared to those with less control; ;
- reported feeling physically, spiritually, emotionally, and mentally balanced ‘all of the time’, compared to those who felt balanced less often.

Additionally, the survey asked respondents questions regarding their perception of the strengths of their community. A higher proportion of adults were physically active who:

- viewed social connection (community working together), traditional ceremonial activities (e.g., powwow), good leisure/recreational facilities, the natural environment, strong leadership, awareness of First Nations cultures, low rates of suicide/crime/drug use, and education and training opportunities as strengths of their community.

Nutrition

As reported earlier, 30.6% of First Nations adults reported that they “always” or “almost always” ate a nutritious and balanced diet, while 51.8% did

so “sometimes”. Similar to above, related factors were categorized into those associated with general health and those associated with mental health.

Regarding factors related to general health, “always/almost always” consuming a balanced, nutritious diet were assessed. A higher proportion of adults consumed a healthy diet who:

- were in in greater overall health: excellent health (44.5% ate nutritiously), very good health (33.1%), good health (26.0%), fair health (24.6%) and poor health (27.7%);
- were more physically active: physically active (34.7% ate nutritiously), moderately physically active (32.0%), and physically inactive (28.3%);
- were underweight/normal weight (31.0% ate nutritiously) or overweight (30.9%), compared to those who were obese/morbidly obese (24.8%);
- did not smoke (35.2% ate nutritiously), compared to those who smoke daily (26.8%) or occasionally (28.8%);
- often had traditional food shared with their household (43.0% ate nutritiously), compared to those who sometimes (26.3%) or never (26.6%) shared traditional food;
- consumed traditional foods such as land based animals, fresh and salt water fish, other water based foods (e.g., shellfish), sea based animals, game birds, small game, berries and other vegetation, and wild rice more often, compared to those who did so less often.

Various mental health factors were examined in relation to “always” or “almost always” consuming a nutritious, balanced diet. A higher proportion of adults consumed a healthy diet who:

- have never thought about committing suicide (33.9% ate nutritiously), compared to those who had (22.2%);
- reported greater feelings of control over their own life (i.e., higher mastery scores), compared to those with less control;
- reported feeling physically, spiritually, emotionally, and mentally balanced ‘all of the time’, compared to those who felt balanced less often (most of the times, sometimes, and almost none of the time).

Furthermore, perceptions of community strengths were also examined. A higher proportion of adults consumed a healthy diet who:

- viewed the natural environment, awareness of First Nations culture, and availability of community and health programs as strengths of their community, compared to those who did not view these as strengths of their community.

Table 6.4 provides an overview of these relationships.

Table 6.4. Key Associations with Physical Activity and Diet

	Physical activity	Diet
Individual factors		
Age	✓	✓
Gender	✓	x
Income	✓	x
Health factors		
General health status	✓	✓
Body mass index (BMI)	✓	x
Physical activity	n/a	✓
Active/Sedentary typical routine	✓	✓
Nutritious diet	✓	n/a
Smoking	x	✓
Number of chronic conditions	✓	✓
Things that make you healthy	x	✓
Mental health factors		
Balance	✓	✓
Suicide ideation/attempts	x	✓
Positive emotional score	✓	✓
Negative emotional score	✓	✓
Social factors		
Social support	✓	✓
Societal factors		
Community strengths	✓	✓

Note. ✓ = Significant association at the $p=.05$ level; x = no observed association; n/a = not applicable.

DISCUSSION

Escalating rates of obesity are evident worldwide (WHO, 2000) and in Canada (Tjepkema, 2006). Based on findings in this chapter, prevalence of obesity remains high within First Nations communities - younger adults and males appear to be at greater risk. Results highlight factors that may lead to greater involvement in physical

activity and increased consumption of nutritious foods – both of which (physical activity and nutritious diet) have been linked to lower levels of obesity.

Physical inactivity is pervasive not only in the national population but also, according to the findings of RHS 2008/10, in First Nations communities. Consistent with findings at a national level, inactivity is more apparent in females, the elderly, and the poor. Understanding the types of physical activities that are more popular among certain groups is an important consideration for strategies to promote activity.

Results from this chapter indicate that walking is the most frequently cited activity for all age and gender groups, consistent with studies of the general Canadian population (Cameron, Wolfe, & Craig, 2007). Walking represents a relatively easy, convenient, and low-cost activity for all age groups. It is therefore an important activity for those who are less active and looking to increase their level of activity. Results from this chapter indicate that certain traditional physical activities are particularly popular among First Nations adults, and more intense activities are more popular among men and younger adults. Such findings should be considered in physical activity strategies.

A healthy living strategy that incorporates physical activity and a nutritious, balanced diet for First Nations adults should provide interventions designed to assist individuals in adopting and maintaining healthy lifestyles. Although independent physical activity and nutritional strategies are useful, a common framework that harmonizes physical activity, nutrition, and other health behaviours would help to increase synergy for developing interventions tailored to certain segments of the population, such as women, children and youth, and older adults (WHO, 2004). The association between physical activity and nutrition (including consumption of traditional foods) in this chapter suggests that promoting positive health behaviour in one lifestyle domain may lead to overall healthier lifestyle changes. Results from this chapter indicate that First Nations adults who often consumed traditional foods were also more likely to be active. This suggests that strategies related to diet must include consideration of traditional foods, and strategies for physical activity must consider various types and forms of physical activity, including traditional activities. In addition, understanding the multitude of factors associated with physical activity and nutrition is important in developing a holistic strategy.

CONCLUSIONS

This chapter examined a host of factors at the individual, social, and community levels that influence health behaviour. In addition to being associated with each other, physical activity and nutrition were also associated with presence of chronic conditions, health behaviours such as alcohol use and smoking, feelings of mastery and life balance, and the observation of strengths within their community. Individual environment, social environment, physical environment, and community environment are all important components within the socio-ecological and cultural frameworks, both of which incorporate the four aspects of “total person” and “total environment.” This holistic approach is important for understanding the internal and external barriers limiting healthy behaviour and the factors that can enable or motivate the First Nations population.

RECOMMENDATIONS

Data from this chapter provide a snapshot of current physical activity and nutrition patterns of First Nations adults living on-reserve and in northern communities and provide valuable information for informing strategies on key public health issues, such as obesity and diabetes. To improve future studies, reliable baseline data involving details on food intake and quality of diet would be useful. Similarly, monitoring physical activity levels should continue in order to assess time spent in motion and sedentary activity. Given the increasing rates of obesity over time, and the decline in muscular strength and flexibility over a similar time period, recent research has looked to supplement self-reported physical activity data with information containing an objective measurement of activity from, for example, accelerometers and pedometers. This objective data has allowed for an examination of the proportion of survey participants that meet pre-determined activity recommendations, such as the proportion of Canadian adults reaching the 150-minutes-per-week recommendation set by the Canadian Society for Exercise Physiology (Colley et al., 2011). Dietary and physical activity data are essential for developing appropriately targeted strategies, and regular monitoring contributes critical information for addressing this significant public health concern among First Nations adults.

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Chapter 7

Nutrition and Food Security

EXECUTIVE SUMMARY

It has been documented that First Nations living on-reserve and in northern communities in Canada face unique food security challenges. This chapter examines food consumption, nutrition, and food security among the First Nations adult population in First Nations communities. The analyses in this chapter are based upon two modules of the First Nations Regional Health Survey (RHS) 2008/10: four questions focused on the frequency in which select store-bought and traditional foods were consumed, as well as self-reported consumption of a nutritious balanced diet, while nine questions were asked to examine food security. Of the nine questions on food security, six were aimed at adults and three at children. The proportion of First Nations adults who reported always or almost always eating a nutritious balanced diet increased with age (21.9% for those aged 18 to 29, up to 45.9% for those aged 60 years or over). One-in-five adults reported cutting the size of their meals or skipping meals because there was not enough money for food, and more than one-third of them did so almost every month in the year prior to the survey. Nearly three-quarters of First Nations adults reported eating protein-based foods (such as beef, chicken, pork, fish, eggs, beans, and tofu), bread, pasta, and other grains at least once a day. Nearly one-in-ten adults reported that they never or hardly ever consumed milk or milk products. More than one-third reported drinking soft drinks one or more times a day. Nearly nine-out-of-ten First Nations adults had had traditional food shared with their household in the 12 months prior to the survey. Large land-based animals were the most often consumed protein-based traditional foods. The findings of RHS 2008/10 demonstrate that more than half of all households are moderately to severely food-insecure. The proportion of First Nations adults who reported always or almost always eating a healthy diet was higher among food-secure households than among food-insecure households. Understanding patterns of food security for First Nations people living in First Nations communities over time will be critical in developing and evaluating national policies and programs related to public health.

KEY FINDINGS

- The proportion of First Nations adults “always or almost always” eating a nutritious, balanced diet increased with age. Nearly half (45.9%) of those aged 60 years or older reported “always or almost always” consuming a healthy diet, compared to one-fifth (21.9%) of those aged 18 to 29.
- Nearly one-in-ten adults (9.5%) reported that they “never or hardly ever” consumed milk or milk products.
- 39.3% of adults reported drinking soft drinks one or more times per day.
- A higher proportion of males reported consuming fast food one or more times a day, compared to females (13.4% vs. 8.8%, respectively).
- The proportion of First Nations adults participating in hunting and trapping in the past 12 months has decreased since RHS 2002/03 (22.1% vs. 31.9%).
- Approximately one-quarter of adults “often” ate large land-based animals (26.4%) and freshwater fish (22.3%) in the past 12 months. More than one-third of adults “often” ate bannock or fry bread (37.3%) in the past 12 months.
- Nearly nine-out-of-ten First Nations adults (85.5%) had traditional food shared with their household in the 12 months prior to the survey.
- One-in-five adults reported cutting the size of their meals or skipping meals because there was not enough money for food (19.8%), and 36.5% of them reported having done so almost every month in the year prior to the survey.
- The proportion of adults who consume traditional foods “often” in the past 12 months (including protein, berries, and other wild vegetation) was higher for remote and isolated communities than for urban and rural communities.
- More than half (54.2%) of First Nations households were categorized as being “moderate” to “severely” food-insecure.
- The proportion of First Nations adults who reported that they “always or almost always” ate a healthy diet was higher among food-secure households (41.4%), compared to those that are moderately food-insecure (24.2%) or severely food-insecure (17.3%).

INTRODUCTION

Food is an important part of First Nations identity, and the nutrition obtained through food is essential for health and well-being. Furthermore, food obtained from traditional food systems links people to the land, a relationship that is spiritual, physical, and central to cultural identity and holistic health (Royal Commission on Aboriginal Peoples, 1996). In 2007, Health Canada released *Eating Well with Canada's Food Guide for First Nations, Inuit and Métis*. This food guide emphasized both traditional foods and store-bought foods that are generally available, affordable, and accessible across Canada (Health Canada, 2007). One-third of First Nations in RHS 2002/03 reported always or almost always eating a nutritious balanced diet, and over half reported that they often consumed traditional protein-based foods (First Nations Information Governance Committee, 2005).

Studies of Aboriginal peoples show that with each generation there is a loss of traditional food use, and dietary quality is diminished by a combination of decreased use of nutrient-dense traditional food and increased use of market food generally inferior in nutritional quality (Willows, 2004). In general, the more rural a community is, the less available commercial foods are, resulting in a greater reliance on traditional food sources. The First Nations Food, Nutrition and Environment Study (FNFNES) from British Columbia indicated that over 200 different types of food were harvested, with salmon, moose, and berries being the most common. Over 91% of all participants ($n = 1,103$) in that study indicated they would harvest more if it were not for lack of equipment, transportation, and time (Chan et al., 2011).

Traditional food systems such as hunting, fishing, harvesting, and gathering now enhance the nutritional value and cultural acceptability of commercially purchased foods (Kuhnlein, Receveur, & Chan et al., 2001). Available foods can be accessed by three main methods: traditional food systems, purchasing from suppliers, and obtaining food through charitable providers.

According to the World Food Summit Plan of Action, "Food security exists when all people, at all times, have physical and economic access to sufficient, safe, nutritious food to meet their dietary needs and food preferences for an active and healthy life" (Food and Agriculture Organization, 1996). Income is one of the main indicators for food security. Accessibility of food is another; given the geographic location of many First Nations communities, lack of access to food results in poorer quality and fewer nutritious options (Indian and

Northern Affairs Canada [INAC], 2003, 2004a, 2004b). The link between food security and health is so clear that Health Canada has recognized that "income-related food insecurity is an important public health issue in Canada and is a key social determinant of health" (Office of Nutrition Policy and Promotion, 2007).

Research indicates that First Nations in Canada face unique food security challenges (Chan et al., 2011; INAC, 2004b). Prevalence of individual and household food insecurity is much higher for the First Nations populations than for the general Canadian population. The 2004 Canadian Community Health Survey (CCHS 2.2) estimates that one out of every three (33.3%) off-reserve Aboriginal households experience food insecurity, compared to 8.8% of non-Aboriginal households. Of those food-insecure Aboriginal households, almost half have been found to be severely food-insecure, compared to only a third of non-Aboriginal households (Office of Nutrition Policy and Promotion, 2007). National health surveys have generally excluded First Nations living on-reserve and in northern communities, resulting in limited data on food security. The RHS 2008/10 is the first national survey to measure income-related household food security in First Nations communities.

An understanding of income-related food insecurity is limited to research in select communities across Canada. The analysis, utilizing a tool similar to the CCHS 2.2, demonstrated an extremely high prevalence of food insecurity, measured at 70% in a First Nations community and 40% and 83% in two Inuit communities (INAC, 2003, 2004a, 2004b). In British Columbia, a larger study including First Nations from 21 randomly selected First Nations communities found that food insecurity affected 41% of First Nations households, including 25% of households with children (Chan et al., 2011). The study in British Columbia included questions similar to those in the CCHS 2.2 and in Health Canada research in select communities (INAC, 2003, 2004a, 2004b).

This chapter examines nutrition patterns and measures food security among the adult First Nations population living in First Nations communities by analyzing data collected by RHS 2008/10. Understanding patterns of food security for First Nations over time will be critical in developing and evaluating national policies and programs related to public health.

In addition to income-related food security, First Nations strive to reclaim traditional food systems as a means to improve food security for present and future individuals, households, and communities, as

demonstrated by the indigenous food sovereignty movement (People’s Food Policy Indigenous Circle, 2011). As Winona Laduke (2005) said:

The recovery of the people is tied to the recovery of food, since food itself is medicine: not only for the body, but for the soul, for the spiritual connection to history, ancestors, and the land. The sustainability of land based life rests on the biodiversity of traditional agriculture, the life stuff for pollinator diversity, and the web of life it-self.

METHODS

This chapter covers questions related to food, nutrition, and food security for First Nations adults living on-reserve and in northern First Nations communities. Questions about food and nutrition explored the frequency with which select store-bought and traditional foods were consumed. Nine questions were asked to examine food security: six provided information on behaviours and conditions for First Nations adults that characterize households when they are having difficulty meeting their food needs, and three provided information on children if there were children living in the household. The responses to these questions by one respondent per household comprised a measure of income-related food security for the household. Each household was classified as food-secure, moderately food-insecure, or severely food-insecure for adults, and food-secure or

food-insecure for children, based on how many of the food-insecure conditions they reported. These food-security questions were similar to some of the questions from the 18-item Household Food Security Survey Module that was used in the 2004 CCHS Cycle 2.2. Food security indices were categorized, consistent with Health Canada and the CCHS. The statistics reported for food security in this chapter were based on this measure.

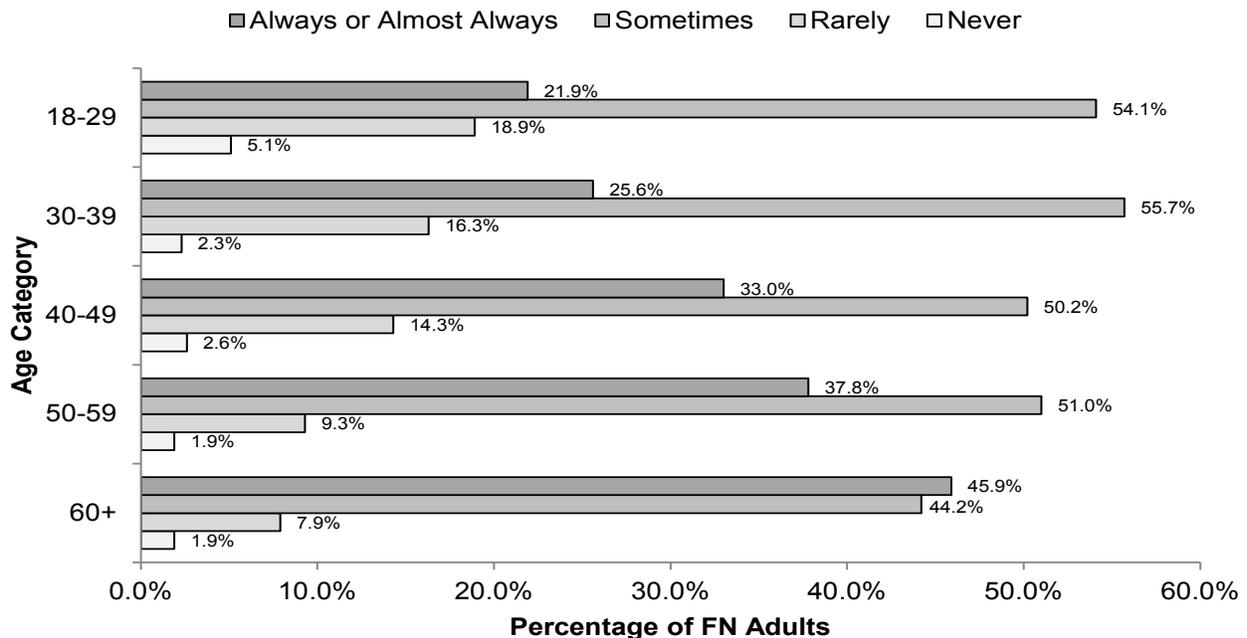
RESULTS

Nutrition

Nearly all First Nations adults reported having a refrigerator (99.0%) and a stove for cooking (99.2%) in their homes. More than one-third (35.8%) did not consider the main water supply in their homes safe for drinking year-round. The majority of adults (70.7%) consume bottled water as a source of drinking water (95% CIs [± 0.3], [± 0.3], [± 2.3], and [± 1.9], respectively).

Fewer than one-third (30.6%) of First Nations adults reported “always or almost always” eating a nutritious balanced diet, and the majority (51.8%) reported they “sometimes” did. The remaining First Nations adults (17.6%) reported “rarely” (14.5%) or “never” (3.1%) eating a healthy diet (95% CIs [± 1.5], [± 1.6], [± 1.1], and [± 0.5], respectively). The proportion of First Nations adults who reported “always or almost always” eating a nutritious balanced diet increased with age (see Figure 7.1).

Figure 7.1. Proportion of Adults Reporting a Healthy Diet, by Age ($n = 10,727$)



Although the patterns for reporting a healthy diet by age group between RHS 2002/03 and RHS 2008/10 were similar, more adults reported “rarely or never” consuming a nutritious balanced diet in RHS 2008/10 than in RHS 2002/03 (17.6% vs. 11.9%, respectively), while fewer adults reported “always or almost always” eating healthy in RHS 2008/10 than in RHS 2002/03 (30.6% vs. 35.4%, respectively).

commonly reported foods eaten at least once per day (78.6%), followed by protein, such as beef, chicken, pork, fish, eggs, beans, and tofu (74.1%), vegetables (62.8%), milk and milk products, such as yogurt and cheese (58.4%), and fruit (56.6%). Nearly one in 10 adults (9.5%) reported that they never or hardly ever consumed milk or milk products (95% CIs [± 1.7], [± 1.5], [± 1.45], [± 1.5], [± 1.6], and [± 0.9], respectively; see Figure 7.2).

Bread, pasta, rice, and other grains were the most

Figure 7.2. Proportion of Adults Reporting Frequency of Eating from Food Group Categories (n = 10,846)

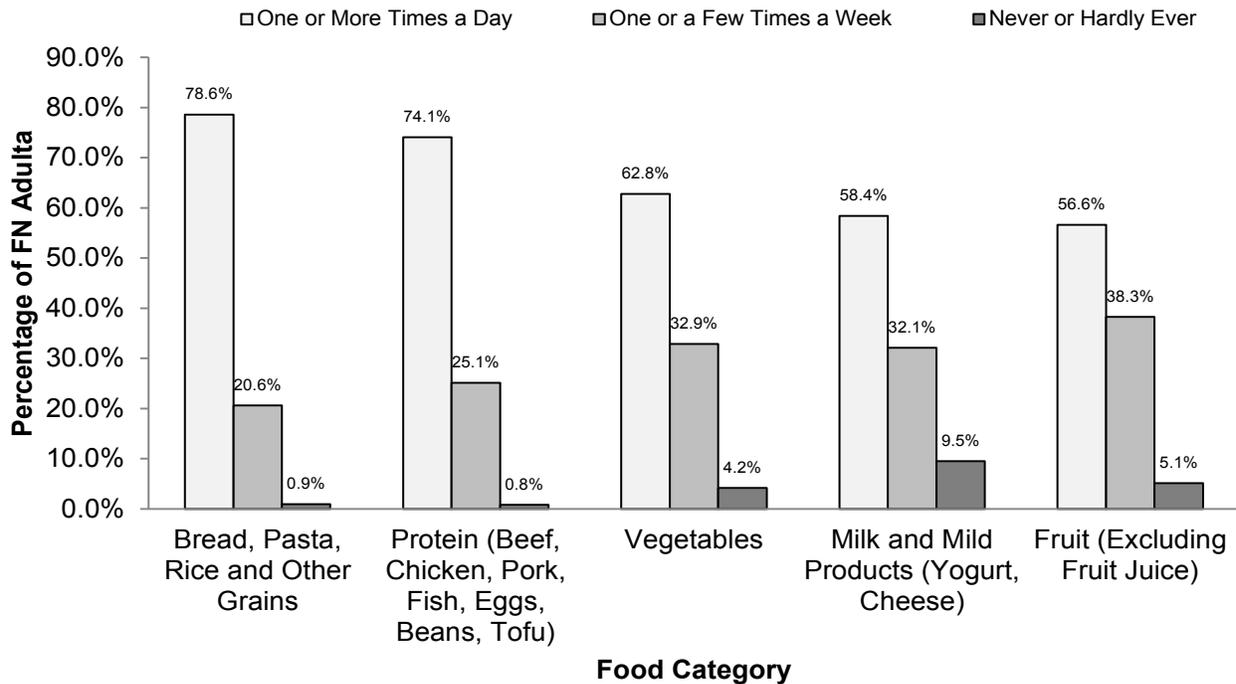
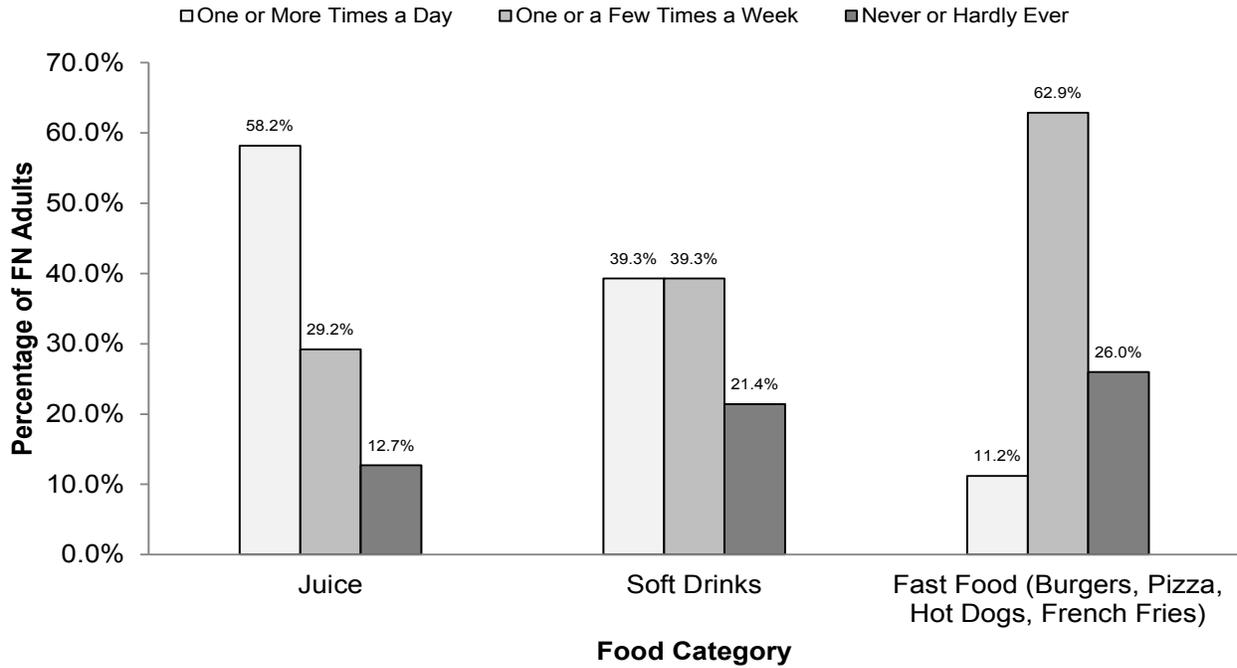


Figure 7.3 shows the frequency of consumption of juice, soft drinks and fast food. More than half (58.2%) of all First Nations adults reported drinking juice once or more per day, while a further 29.2% reported drinking juice once or a few times per week. Moreover, 39.3% of First Nations adults reported consuming soft drinks once or more per day, with an additional 39.3% consuming pop once to a few times per week. Approximately one-quarter (26.0%) of all First Nations adults reported “never or

hardly ever” eating fast food, such as burgers, pizza, hotdogs, and French fries, while 62.9% did so once or a few times per week, and 11.2% did so at least once per day (95% CIs [± 1.9], [± 1.5], [± 1.9], [± 1.45], [± 1.5], [± 1.6], [± 1.0], respectively). A higher proportion of males than females ate fast food at least one per day (13.5% vs. 8.8%, 95% CIs [± 1.5] and [± 1.1], respectively).

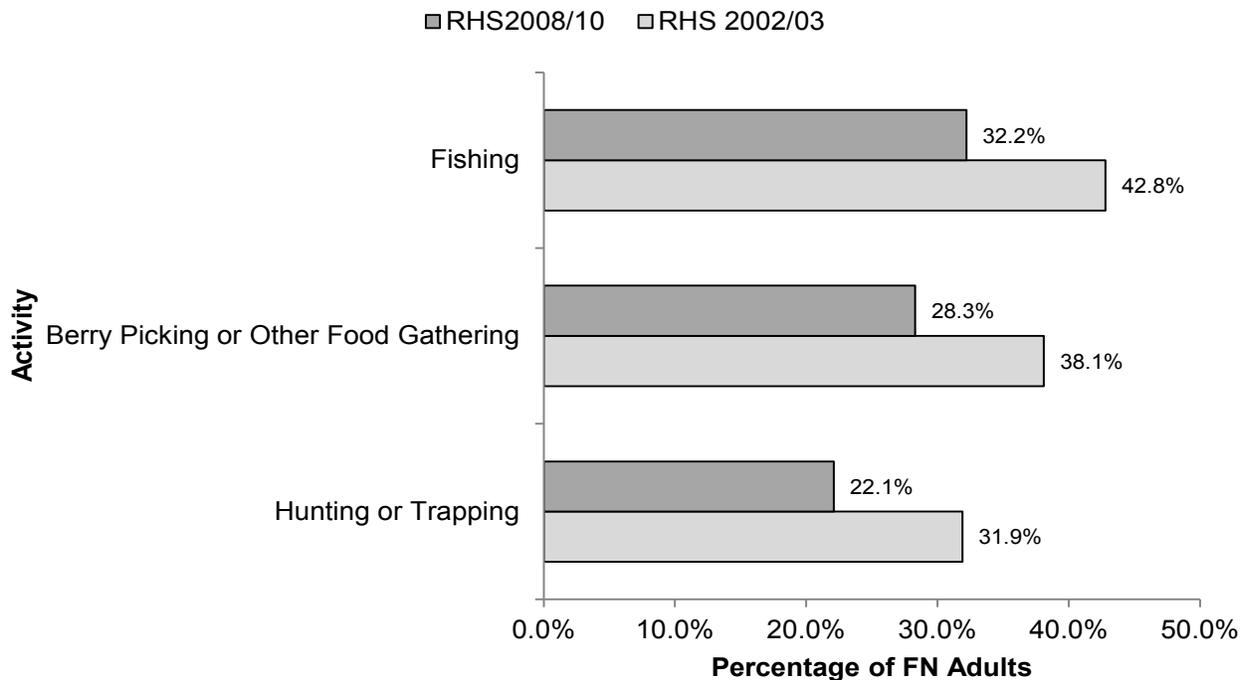
Figure 7.3. Proportion of Adults Reporting Frequency of Eating or Drinking from Food Group Categories (n = 10,726)



Approximately one-fifth (22.1%, 95% CI[±1.3]) of all First Nations adults reported hunting or trapping in the 12 months prior to the survey, with more than one-quarter (28.3%, 95% CI[±1.7]) reporting berry picking

or other food gathering. These proportions were lower in RHS 2008/10 than in RHS 2002/03 (see Figure 7.4).

Figure 7.4. Comparison of RHS 2002/03 and RHS 2008/10 for the Prevalence of Participating in Hunting or Trapping, Berry Picking or Other Food Gathering, and Fishing in the 12 Months Prior to the Survey (n = 11,019)



Large land-based animals were the most often reported “often consumed” traditional food (26.4%), followed by freshwater fish (22.3%), game birds (8.7%), small game (7.2%), and saltwater fish (6.4%). Additionally, more than one-third of First Nations reported that they often ate bannock or fry bread (37.3%), followed by berries or other wild vegetation (18.6%), wild rice (6.0%), and corn soup (5.7%), 95% CIs [± 1.9], [± 1.7], [± 1.1], [± 0.9], [± 1.1], [± 1.7], [± 1.5], [± 0.75], and [± 1.4], respectively.

The majority (85.5% 95% CI [± 1.5]) of First Nations adults reported having had someone “often” or “sometimes” share traditional food with their household in the 12 months prior to the survey (see Figure 7.5). Among those First Nations adults who “often” shared traditional food with someone, the top four traditional foods shared were land-based animals, such as moose, caribou, bear, deer, and bison (92.6%), berries or other wild vegetation (87.4%), freshwater fish (84.3%), and game birds, such as goose or duck (59.6%), 95% CIs [± 2.1], [± 2.5], [± 2.5], and [± 3.8], respectively.

Figure 7.5. Proportion of Adults who had Traditional Food Shared with their Household in the 12 Months Prior to the Survey (n = 10,631)

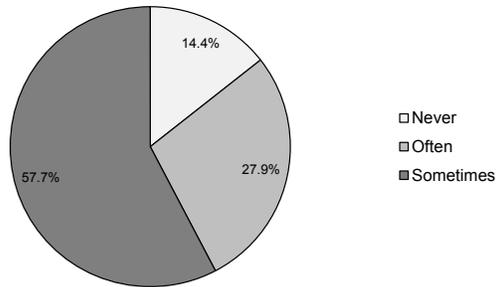
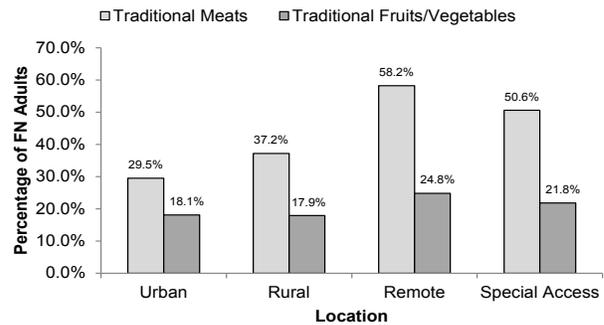


Figure 7.6 demonstrates that more than half of the First Nations adults living in remote (58.2%) or special access (50.6%) communities reported “often” eating protein-based traditional foods, compared to a lower proportion in urban (29.5%) or rural (37.2%) communities (95% CIs [± 7.1], [± 4.7], [± 2.8], and [± 3.2], respectively).

Figure 7.6. Proportion of Adults Often Consuming Traditional Foods, by Location (n = 10,653)



Note. Categories of geographic remoteness: Urban (Zone 1) = located within 50km of the nearest service centre with year-round road access; Rural (Zone 2) = located between 50 km and 350km from the nearest service centre with year-round road access; Remote (Zone 3) = located greater than 350km from the nearest service centre with year-round road access; Special Access (Zone 4) = no year-round road access.

Body Mass Index

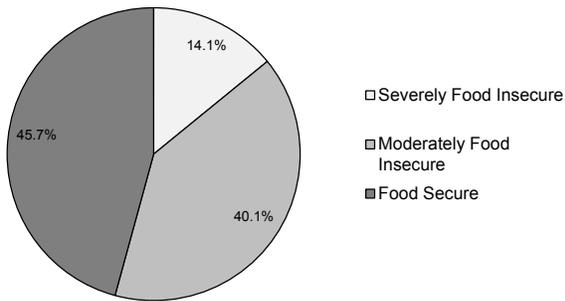
Approximately one-quarter (24.2%) of all First Nations adults had a normal body mass index (BMI), while 1.4% were underweight, 34.2% were overweight, 34.8% were obese, and 5.4% were morbidly obese (95% CIs [± 1.3], [± 0.2], [± 1.3], [± 1.4], and [± 0.8]). These results were similar to the findings in RHS 2002/03. In the assessment of the CCHS 2.2, researchers found that when self-reported height and weight data were used to calculate obesity prevalence rates, rates were significantly higher among food-insecure respondents than among food-secure respondents (Lyons, Park, & Nelson, 2008).

Food Security

Approximately one-third (16.5%, 95% CI [± 1.0]) of all First Nations adults reported often struggling (i.e., borrowing money) each month or more often to meet the basic living requirements for food in the 12 months prior to the survey. One in five First Nations adults (19.8%, 95% CI [± 1.4]) reported cutting the size of their meals or skipping meals because there was not enough money for food, with 36.5% (95% CI [± 3.15]) having done so almost every month in the year prior to the survey.

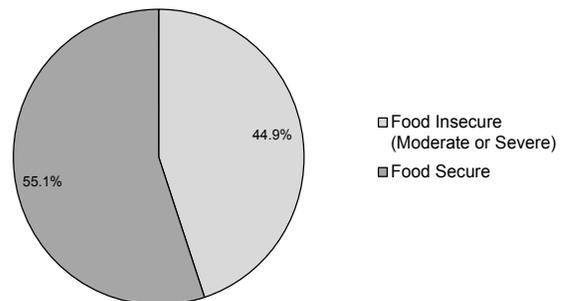
Over half (54.2%) of all First Nations households were classified as food-insecure, with 14.1% (95% CI [± 1.2]) considered severely food-insecure (see Figure 7.7). Of those households with children, just under half (44.9%) were classified as food insecure (see Figure 7.8).

Figure 7.7. Household Food Security Status for Adults (n = 10,371)



Note. Classification of food security status in the RHS follows the Health Canada standard rather than the U.S. standard. Households that affirm one item would be classified as food secure in the U.S. and in some early Canadian surveys that followed the U.S. schemata.

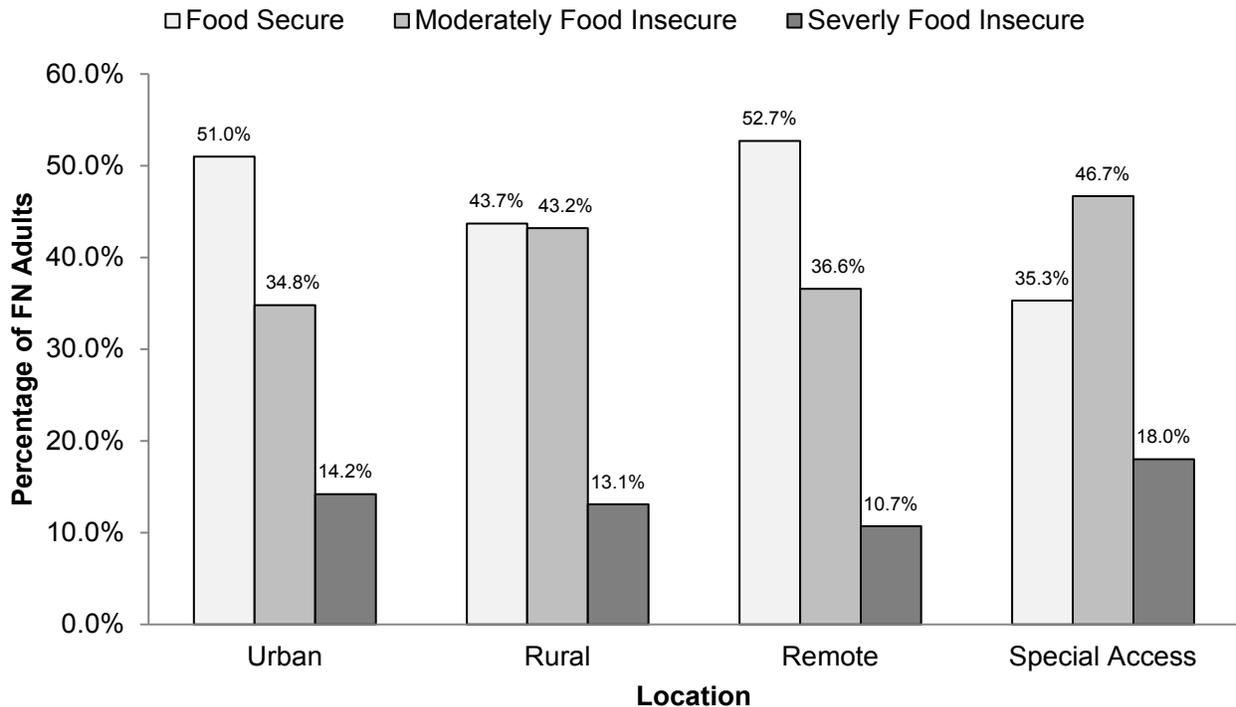
Figure 7.8. Household Food Security Status for Children (n = 5,591)



Note. Due to the specific subset of questions used to determine the food security status of children, it was not appropriate to sub-classify the population of food-insecure children into moderate and severe categories, as was reported for adults.

A greater proportion of First Nations households in urban communities (51.0%, 95% CI [± 3.2]) were food-secure, compared to households in isolated communities with only special access (35.3%, 95% CI [± 5.7]). Interestingly, a higher proportion of households in remote communities were food-secure (52.7%, 95% CI [± 10.5]), and remote communities had fewer households categorized as severely food-insecure (10.7%, 95% CI [± 4.2]), compared to households in urban (51.0% and 14.2%, respectively) or rural (43.7% and 13.1%, respectively) locations.

Figure 7.9. Household Food Security Status, by Type of Community

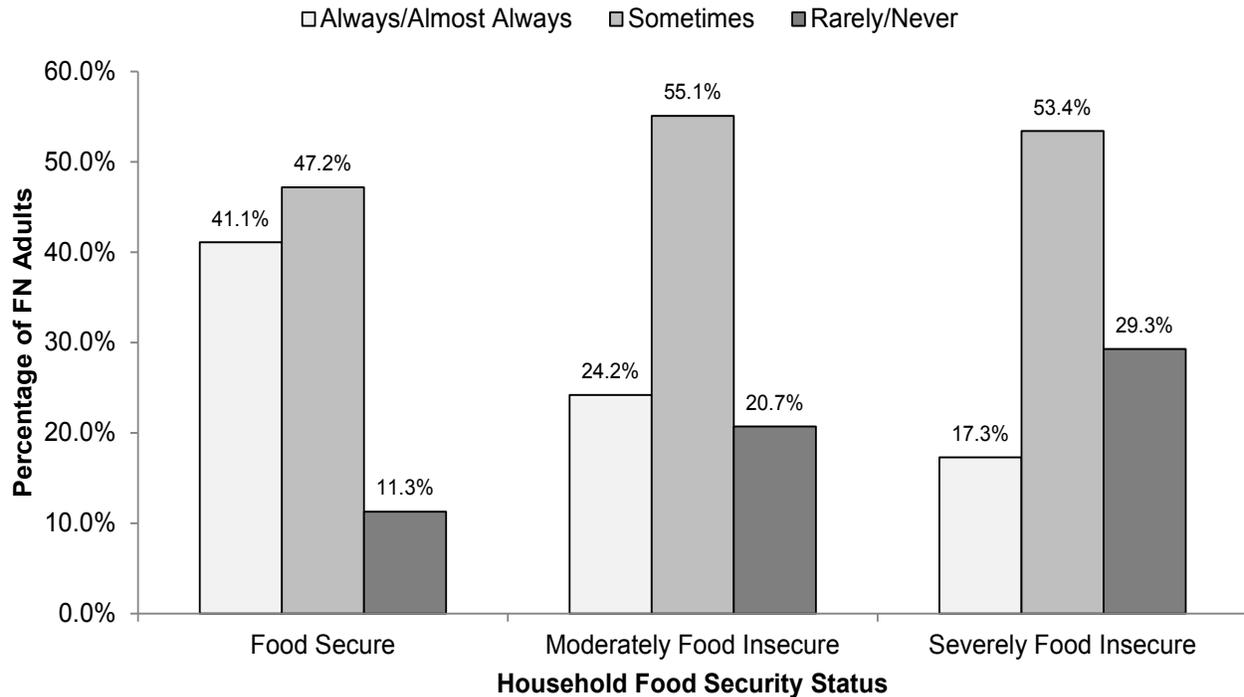


Association Between Nutrition and Food Security

An association between regularly consuming a nutritious diet and food security in First Nations households was observed in RHS 2008/10. The proportion of First Nations

adults who reported that they “always or almost always” ate a healthy diet was higher among food-secure households (41.4%), compared to those that are moderately food-insecure (24.2%) or severely food-insecure (17.3%).

Figure 7.10. Proportion of Adults Reporting a Healthy Diet, by Household Food Security Status (n = 10,196)



Diet, Food Security, and the Cultural Framework

Table 7.1 provides an overview of the association of key indicators for having a nutritious balanced diet and food security. With the exception of two relationships—diet and community size, and food security and BMI—diet and food security were significantly related to all other key indicators.

Table 7.1. Relationship of Key Indicators with Diet and Adult Food Security

	Diet	Food security
Individual factors		
Age	✓	✓
Gender	✓	✓
Community size	✗	✓
Remoteness	✓	✓
Health factors		
General health status	✓	✓
Number of specific chronic conditions	✓	✓
Physical activity	✓	✓
Diet	n/a	✓
BMI	✓	✗
Smoking	✓	✓
Alcohol	✓	✓
Mental health factors		
Balance with four aspects	✓	✓
Suicide ideation	✓	✓

Note. The key indicators for societal factors (progress in community) and social factors (social support) could not be included in this table because there were too many components for these indicators. ✓ = significant association at the $p = 0.05$ level; ✗ = no association; n/a = not applicable.

DISCUSSION

The RHS 2008/10 provided the first collection of national-level data for income-related food security in First Nations households within Canada. It is fitting that an analysis of nutrition and food security are included in the same chapter. For First Nations, a comprehensive understanding of food intake and nutrition is important in understanding and improving health.

Nutrition

The majority of First Nations adults reported they sometimes ate a nutritious balanced diet. In many communities, health promotion programs, such as the Aboriginal Diabetes Initiative, have been in place for many years. One of the primary goals of this community-led initiative, funded by the First Nations and Inuit Health Branch of Health Canada, is to promote healthy eating and lifestyles (Health Canada, 2003). This could be one explanation for why a greater number of adults identify with “rarely or never” consuming a nutritious balanced diet in RHS 2008/10 compared to RHS 2002/03. The food choices based on Aboriginal cultural values may not be congruent with Western scientific constructs regarding the nutritional value of

food. However, the eating of traditional foods is often associated with feelings of good health (Willows, 2005).

The questions on food and nutrition in RHS 2008/10 did not capture a comprehensive picture of the First Nations diet. However, they do provide some insight into nutrition trends that may be useful in health promotion programming. For example, nearly one in 10 adults claim they “never or hardly ever” consumed milk or milk products. The FNFNES study in British Columbia also found a low intake of milk and other dairy products among First Nations adults. Furthermore, diet quality is much better when traditional food is consumed (Chan et al., 2011). Factors that may contribute to low milk and dairy product consumption by First Nations include the high cost of dairy products in rural and northern parts of Canada and the prevalence of lactose intolerance among First Nations.

Since RHS 2002/03, there has been a reduction in reported hunting and trapping and a similar decrease in berry picking and other food gathering. Nationally, experimental food projects, such as gardening projects, have gained momentum in improving food availability and healthy communities (Nelson & Stroink, 2009).

Approximately 90% of First Nations adults living in First Nations communities had had traditional food shared with their household in the 12 months prior to the survey. Following a hunt or harvest, it is customary among First Nations to share the food, among married children and parents, then elders and others in need, as well as with other family and community members (Delormier, Kuhnlein, & Penn, 1993). Food sharing has been pervasive in hunter-gatherer societies, and food transfers among adults living in different households are also a common practice for these groups of people (Kaplan & Gurven, 2005). Beyond sharing food to avoid food wastage, food sharing is a social bonding activity that respects the value of caring for the whole community (Food Safety Network, 2009). In Ford’s (2009) model of the food security determinants for Inuit communities, sharing is listed as one of the determinants related to food access, thus affecting food security.

Geographic location is also associated with eating protein-based traditional foods. Variations in traditional food systems and diets among First Nations communities in Canada are the result of differences in geographic locations, the availability of different types of food sources, proximity and access to animal migration routes and plants species, and traditional hunting and fishing practices (Assembly of First Nations, 2007; Willows, 2005).

Bottled water can sometimes cost double the cost of soft drinks, which makes soft drinks an easier yet unhealthier option (Harden & Levalliant, 2008). One reason for using bottled water over tap water is that consistently a number of First Nations communities are under drinking water advisories. As of April 2011, 122 First Nations communities across Canada were under a drinking water advisory (Health Canada, 2011b).

Food Security

As income decreases, the prevalence of reporting food insecurity increases (McIntyre & Tarasuck, 2002; Rose, 1999). For many low-income families, the unfortunate reality is that the grocery budget is flexible, whereas other bills, such as hydro, are not. One in six First Nations adults reported struggling throughout the year prior to the survey to meet the basic living requirements for food. The cost and accessibility of certain foods varies considerably between geographic regions. Despite government subsidization, the cost of purchasing market food in northern communities is high because of the long distance the food must be transported (Lambden, Receveur, Marshall, & Kuhnlein, 2006). Moreover, cost and accessibility are issues in the acquisition of traditional foods as well. Studies have found that the cost of the equipment and transportation necessary for hunting and fishing in Arctic communities are major barriers to food security (Boult, 2004; Lambden et al., 2006).

More than half (54.2%) of all First Nations households were food-insecure, including 14.1% with severe food insecurity. In 2004, the comparable statistics for all Canadians, excluding those living on Crown lands and First Nations reserves, indicated that 9.2% were food-insecure and 2.9% were severely food-insecure (Office of Nutrition Policy and Promotion, 2007). For off-reserve Aboriginal households in the 2004 CCHS 2.2, the comparable statistics were 33.4% food insecurity and 14.4% severe food insecurity (Office of Nutrition Policy and Promotion, 2007). These data clearly show that First Nations households in First Nations communities are considerably more food-insecure—and more severely food insecure—than the general Canadian population. First Nations households in First Nations communities are also more food-insecure than off-reserve Aboriginal households. Food security typically affects adults before children (Radimer, Olson, Greene, Campbell, & Habicht, 1992), as adults will compromise their own diet before compromising the diet of their children.

Association Between Nutrition and Food Security

There is an association between eating a healthy diet and food security in the household. The progression of food security to food insecurity follows a pattern that begins with food anxiety, compromised diet quality, compromised food quantity, feelings of hunger, and ultimately not eating at all (Tarasuk, 2001). First Nations adults who live in food-secure households are more likely to report eating a healthy diet always or nearly all of the time, which indicates that they have not felt they were compromising their diet quality. Income and financial security are the most significant determinants of food insecurity (McIntyre & Tarasuck, 2002; Rose, 1999).

Diet, Food Security, and the Cultural Framework

It is not surprising that diet and food security have an association with many factors. Health promotion interventions that focus on improving food security could have positive effects on various health factors, including aspects of mental health. There is substantial evidence that many health problems experienced by First Nations people, including anemia, dental caries, obesity, heart disease, and type 2 diabetes (Health Canada, 2003), are related to diet (Willows, 2005). However, interestingly, there is no significant association between food security and BMI. Perhaps this is because a variety of external and internal factors can affect BMI. It should also be noted that, in adults, waist circumference should be combined with BMI as a better predictor of obesity-related health risk, rather than BMI alone (Janssen, Katzmarzyk, & Ross, 2004).

CONCLUSIONS

Income-related food insecurity is high within the First Nations population. Traditional foods, and the sharing of traditional foods, provide a social bonding activity that respects the value of caring for the whole community. Although geography can negatively affect the cost and availability of healthy foods, remoteness allows First Nations to remain connected to traditional food systems, which can be a supporting factor for increased food security. However, the decline in the practices of hunting, fishing, and gathering between RHS 2002/03 and RHS 2008/10 is a cause for some concern. To achieve food security, First Nations communities must identify a shared vision of food security and translate it to locally controlled food and nutrition policy, in order to ensure a healthy, vibrant community.

Future development of the RHS food security module should consider adapting the CCHS 2.2 and the First

Nations Food, Nutrition, and Environment Study measures. The development of a new measure should also incorporate cultural indicators of food security, such as levels of traditional food knowledge, access to traditional food systems, and the safety of traditional food. The revised module for assessing household food security in First Nations communities should continue to be included in future phases of the RHS, allowing for the analysis of food security trends over time. Health-related policy directed at First Nations living on-reserve or in northern communities should include opportunities to improve food security.

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Chapter 8

Smoking, Substance Misuse and Gambling

EXECUTIVE SUMMARY

This chapter presents results on smoking, alcohol, drug use, and gambling behaviour among First Nations adults as reported in the First Nations Regional Health Survey (RHS) 2008/10. The RHS survey is a valuable resource as it provides the only national-level information currently available about addictive behaviours among First Nations adults living on-reserve and in northern communities in Canada.

Approximately 57% of First Nations adults in First Nations communities are current smokers. No change was observed since the previous RHS. One-third of First Nations smokers had made a quit attempt in the year prior to the survey. A similar percentage of First Nations males and females are current smokers – however, females were more likely to have made efforts to quit smoking.

More than one-third of First Nations adults reported having abstained from alcohol in the past 12 months; a higher proportion than that observed among the general Canadian population. However, almost two-thirds of those who drink engage in heavy consumption (i.e., 5 or more drinks in one sitting at least once a month for the past 12 months). First Nations males were more likely than females to engage in heavy drinking.

Adult cannabis use has increased since RHS 2002/03 (32.3% vs. 26.7%). More than one-in-ten First Nation adults report using cannabis almost daily or daily. Besides cannabis use, cocaine/crack was the next most commonly used illicit drug; 7.8% of adults used this drug in the past year. Rates of past year cannabis use, almost daily/daily cannabis use, and past year hallucinogen and amphetamine use were higher among males than females.

Problem gambling behaviours (e.g., borrowing money to gamble, gambling more than one can afford) were also prevalent. First Nations females were more likely than males to engage in problematic gambling.

KEY FINDINGS

- 57% of First Nations adults smoked daily or occasionally – no difference was observed between males and females.
 - Smoking was more prevalent among First Nations adults who were not currently working for pay or had a lower household income; this is consistent with data from the general Canadian population.
 - Approximately one-third of adults who indicated being current or ex-smokers attempted to quit in the 12 months prior to the survey (30.3%). Quit attempts were slightly more common among First Nations females than among First Nations men (34.5% vs. 26.5%). A higher proportion of First Nations females reported living in a smoke-free home compared to males (69.6% vs. 62.2%).
- Approximately one-third (35.3%) of First Nations adults were abstinent from alcohol in the past 12 months. However, of those who do drink, almost two-thirds (63.5%) report drinking heavily.
 - First Nations females were more likely than men to be abstinent from alcohol (39.0% vs. 31.6%) and, of those who drink, less likely to consume alcohol heavily (56.4% vs. 69.7%).
- Approximately one-third (32.3%) of First Nations adults used cannabis in the 12 months prior to RHS 2008/10, revealing a significant *increase* since RHS 2002/03 (26.7%).
 - Cannabis use was particularly prevalent among First Nations men (40.5% among men vs. 24.1% among females).
 - 16.8% of men and 7.8% of females reported daily or almost daily use.
- Past year use of cocaine/crack, hallucinogens and amphetamines were more prevalent among First Nation males vs. females.
- At least 7.4% of First Nations adults met criteria for problem gambling and another 31.1% met criteria for ‘at-risk’ gambling.
 - Gambling was more common among First Nations females (76.2%) than among First Nations men (66.1%). No gender difference was observed in the prevalence of gambling problems.

INTRODUCTION

This chapter describes the prevalence of smoking, alcohol, drug use, and gambling behaviour among First Nations adults living on-reserve and in northern communities. The 2008/10 Regional Health Survey is a valuable resource as it provides the only national-level information available about addictive behaviours among First Nations living in First Nations communities in Canada.

Findings suggest that smoking rates remain high among First Nations adults despite significant reductions among the general Canadian population (First Nations Information Governance Committee [FNIGC], 2005). Smoking is associated with the two leading causes of death among Aboriginal peoples in North America, cardiovascular disease and cancer (Young, 1994). Thus, reducing smoking is critical to improving the health of this population. One goal of the present chapter is to provide an update on smoking prevalence among First Nations adults based on RHS 2008/10 data, as well as information about cessation efforts, motivations, and methods used to quit. This information may be used to strengthen smoking cessation programs within First Nation communities.

The RHS 2002/03 documented higher alcohol abstinence among First Nations adults (34.4%) compared to the general Canadian population (20.7%) (Adlaf, Begin & Sawka, 2005). However, among those who do drink, binge drinking (i.e., 5 or more drinks in one drinking occasion) and heavy drinking (i.e., binge drinking at least once per month in the past 12 months) and is higher among First Nation adults (FNIGC, 2005).

The incidence of cannabis and other drug use was also higher among First Nations adults in RHS 2002/03 than among the general Canadian population. Cannabis use was prevalent, with 26.7% of First Nations adults reporting past-year use (compared to 14.1% of the general Canadian population) (FNIGC, 2005; Fischer, Rehm, & Hall, 2009). While the risks of cannabis use seem lower than those of cocaine or heroin, health problems do exist, and, due to high prevalence of use, the impact of cannabis on health can be significant (European Monitoring Centre for Drugs and Drug Addiction, 2010).

Gambling can also have negative impacts on both individuals and communities. Problem gambling is gambling behavior that creates negative consequences

for the gambler, others in his or her social network, or for the community (Canadian Centre on Substance Abuse, 2001). Research suggests that approximately 5% of Canadians are problem gamblers (Marshall & Wynne, 2004). While national-level data on problem gambling are not available for First Nation adults, findings from several provincial studies suggest problem gambling may be more prevalent among First Nations adults than among the general population in Canada (Oakes & Currie, 2005; Smith & Wynne, 2004; Wynne & McCready, 2005; Wynne, 2002).

METHODS

The present chapter reports the most recent RHS data on cigarette smoking, alcohol use, and illicit drug use/misuse of prescription drugs. Data are compared to those observed in the RHS 2002/03 and with findings from the general Canadian population (where comparable data are available).

Current smokers were defined as those who presently smoke daily or occasionally. Those who indicated that they do not presently smoke were asked whether they had smoked in the past. Past smokers were asked to indicate their reason(s) for quitting [“respect for the cultural and traditional significance of tobacco”, “chose a healthier lifestyle”, “health condition”, “doctor’s orders”, “peer pressure from friends and co-workers”, “out of respect for loved ones”, “greater/awareness/education about the ill effects of cigarettes on my health”, and “pregnancy”] and their method(s) for quitting [“cold turkey/will power alone”, “with help from spirituality”, “with assistance from family”, “nicotine replacement patch”, “nicotine replacement gum”, “zyban (bupropion)”, “other prescribed medications”, “traditional methods”, and “self-help/support program”].

Alcohol use was assessed by asking about use in the previous 12 months (yes/no). Respondents were considered abstinent from alcohol if they did not consume alcohol in the 12 months before the survey. Those who did indicate past-year alcohol consumption were also asked how often they consume alcoholic beverages [response options: “once a day”, “about 2-3 times/week”, “about 2-3 times/month”, “about once/month”, and “about 2-3 times/year”. Next, participants were asked how often they have 5 or more alcohol beverages (i.e., frequency of binge drinking) [response options: “everyday”, “more than once/week”, “once/week”, “2-3 times/month”, “once/month”, “less than once/month”, “never”]. Heavy drinking is defined as binge drinking at least once a month in the past 12 months.

Participants were asked how often they had used any of the following substances in the past 12 months (without a prescription): cannabis; hallucinogens, including LSD, magic mushrooms, PCP, and Special K; amphetamines, including crystal meth, speed, and ecstasy; cocaine or crack; sedatives or sleeping pills without a prescription; illicit or prescription opioids, includes illicit opioid use, like heroin, and non-prescription use of codeine, methadone, morphine, etc.; and inhalants, such as solvents, glue, and gas. Response options were: “never”, “once or twice”, “monthly”, “weekly”, “daily or almost daily”. Participants were also asked whether they have ever sought treatment for substance abuse/addiction (yes/no).

Finally participants were asked if they have ever gambled (i.e., spent money on bingo, card games, lottery tickets, VLT, casino, and sports games). Those who indicated lifetime gambling were then asked questions about problem gambling. The RHS 2008/10 included three of the nine questions used to screen adults for problem gambling in Canada from the *Canadian Problem Gambling Index* (CPGI): (a) Have you ever borrowed money to gamble? (b) Have you ever bet more money than you could afford to lose? (c) Has your gambling caused any financial problems for you and your family? (Ferris & Wynne, 2001). The answers to these three questions were grouped to create a conservative estimate of the prevalence of problem gambling in this population. Response items on the RHS were “yes” and “no,” and scored 1 and 0, respectively. In contrast, response items for the CPGI include “almost always,” “most of the time,” “sometimes” and “never,” scored as 3, 2, 1, and 0, respectively. These scoring differences further underscore the conservative nature of the estimates presented in this chapter. Problem gambling scores were created using the recommended CPGI scoring criteria, with scores of 0 classified as non– problem gamblers, scores of 1 or 2 classified as at-risk gamblers, and scores of 3 classified as problem gamblers (Ferris & Wynne, 2001).

RESULTS

Smoking

As shown in Table 8.1, the prevalence of smoking was 56.9% (43.2% daily, 13.7% occasional). In comparison, the prevalence of smoking among adults in the general Canadian population in this time period was less than 20% (Reid & Hammond, 2009). Prevalence of smoking

remained unchanged since the previous RHS (2002/03). No gender difference was observed in current smoking.

Consistent with the general Canadian population, smoking was more prevalent among those with *lower household incomes* and those who are *not currently working for pay/wages*. Smoking was also more prevalent among First Nations adults with *three or more children* living in the home (see Table 8.1). First Nations females were more likely to have a smoke-free home than males (see Table 8.2).

Table 8.1. 12-Month Smoking Prevalence, by Socio-demographics (n = 10,814)

	Daily Smoking % [95% CI]	Occasional Smoking % [95% CI]
All adults	43.2 [41.6, 44.8]	13.7 [12.7, 14.9]
Female	42.8 [40.9, 44.8]	14.1 [12.4, 15.9]
Male	43.5 [41.3, 45.7]	13.4 [12.3, 14.6]
Age categories		
18–29	51.5 [48.6, 54.4]	15.4 [13.7, 17.2]
30–39	44.2 [40.9, 47.6]	18.4 [15.1, 22.3]
40–49	44.8 [41.6, 48.2]	15.0 [13.3, 17.0]
50–59	38.5 [35.5, 41.6]	9.5 [7.8, 11.4]
60+	25.4 [23.1, 28.0]	5.5 [4.4, 6.8]
Household income		
income loss– \$19,999	48.8 [46.3, 51.4]	16.3 [14.6, 18.1]
\$20,000–\$39,999	41.5 [38.6, 44.4]	12.9 [10.7, 15.6]
\$40,000–\$59,999	39.7 [35.9, 43.6]	13.2 [10.2, 17.0]
\$60,000 or more	33.0 [28.9, 37.3]	13.4 [10.7, 16.6]
Currently working for pay/wages		
Yes	39.2 [37.0, 41.4]	13.9 [12.2, 15.7]
No	46.4 [44.3, 48.6]	13.5 [12.3, 14.8]
Number of children in home		
0–2	41.6 [39.9, 43.4]	13.2 [12.1, 14.4]
3 or more	48.2 [45.2, 51.2]	16.3 [13.7, 19.2]

Almost a third (30.3%) of First Nations adults who were smokers made a quit attempt in the 12 months prior to survey (see Table 8.2). Females were more likely to have made a quit attempt than males in both RHS 2002/03 and RHS 2008/10. Regardless of gender, the most common motivations to quit were the pursuit of a healthier lifestyle, greater awareness about the ill effects of smoking, the presence of a health condition,

and out of respect for loved ones. Pregnancy was also an important motivation for First Nations females.

The most common cessation method, used by three out of four adults, was abrupt cessation—going cold turkey or using will power. A minority of adults tried other methods, such as using spirituality, assistance of family, and nicotine replacement therapy.

Table 8.2. Smoking Cessation Behaviours Among Current and Ex-smokers in the 12 Months prior to RHS 2008/10

	Overall %	95% CI	Females %	95% CI	Males%	95% CI
Quit attempts (past year)						
Did not try to quit	69.7	[65.1, 73.8]	65.5	[60.2, 70.5]	73.5	[67.4, 78.9]
1–2 tries	23.1	[19.3, 27.3]	25.9	[21.2, 31.2]	20.4	[15.3, 26.7]
3–4 tries	3.9	[2.8, 5.3]	4.3 ^E	[2.8, 6.6]	3.4 ^E	[2.2, 5.4]
5 or more tries	3.4	[2.5, 4.6]	4.3 ^E	[2.9, 6.3]	2.6 ^E	[1.6, 4.1]
Methods used to try to quit*						
Cold turkey/will power alone	77.2	[72.9, 80.9]	76.7	[71.6, 81.0]	77.6	[72.8, 81.9]
Spirituality	5.0	[4.0, 6.3]	6.1	[4.6, 8.1]	3.9 ^E	[2.8, 5.6]
With assistance from family	3.5	[2.8, 4.4]	4.0	[3.0, 5.4]	3.0 ^E	[2.1, 4.3]
Nicotine replacement therapy	4.2	[3.3, 5.3]	4.1	[3.1, 5.5]	4.2 ^E	[3.0, 6.0]
Support or self-help program	2.4 ^E	[1.7, 3.4]	2.8 ^E	[1.8, 4.2]	2.0 ^E	[1.3, 3.1]
Reasons for trying to quit						
Choosing a healthier lifestyle	55.5	[51.1, 59.9]	55.8	[51.0, 60.5]	55.2	[49.6, 60.8]
Greater awareness of ill effects on health	20.9	[18.3, 23.8]	21.3	[18.1, 24.7]	20.5	[16.6, 25.0]
Health condition	19.8	[17.8, 21.9]	22.4	[19.5, 25.6]	17.0	[14.7, 19.7]
Out of respect for loved ones	16.9	[14.4, 19.6]	19.1	[15.9, 22.7]	14.6	[11.9, 17.8]
Pregnancy	--		15.5	[13.1, 18.2]	--	
Doctors' orders	6.5	[5.2, 8.1]	7.4	[5.6, 9.7]	5.5 ^E	[3.9, 7.8]
Respect for cultural significance of tobacco	5.5	[4.4, 6.7]	5.6	[4.3, 7.4]	5.3	[3.8, 7.2]
Peer pressure from friends or co-workers	2.4 ^E	[1.7, 3.4]	2.2 ^E	[1.4, 3.3]	2.6 ^E	[1.5, 4.3]
Do you have a smoke-free home?						
Yes	65.9	[64.5, 67.3]	69.6	[67.9, 71.4]	62.2	[60.2, 64.2]

*Additional smoking cessation methods suppressed due to small cell counts.

^E: High sampling variability; use estimate with caution

Alcohol Use

As shown in Table 8.3, more than a third (35.3%) of First Nations adults were abstinent from alcohol in RHS 2008/10 (similar to that observed in 2002/03, 34.4%). In comparison, less than a quarter of adults (23.0%) in the general Canadian population were abstinent from alcohol in 2010 (Statistics Canada, 2010). A higher proportion of First Nations females (39.0%) reported alcohol abstinence than men (31.6%) in RHS 2008/10.

Table 8.3. Alcohol Use among First Nations Adults in the 12 Months prior to RHS 2008/10

	Overall %	95%CI	Females %	95%CI	Males %	95%CI
Abstinence 12 months	35.3	[33.8, 36.8]	39.0	[37.0, 41.1]	31.6	[29.7, 33.6]
Frequency of alcohol use*						
2–3 times a year	21.6	[20.1, 23.2]	26.7	[24.6, 28.8]	17.3	[16.6, 19.3]
Once a month	22.8	[21.2, 24.5]	24.5	[22.4, 26.8]	21.3	[19.2, 23.4]
2–3 times a month	34.5	[32.8, 36.3]	32.9	[30.6, 35.3]	35.9	[33.6, 38.4]
2–3 times a week	17.9	[16.6, 19.3]	14.4	[12.9, 16.0]	21.0	[19.0, 23.1]
Daily	3.2	[2.6, 3.8]	1.5	[1.2, 2.0]	4.6	[3.7, 5.7]
Binge drinking*						
Never	13.5	[12.2, 14.9]	18.5	[16.4, 20.7]	9.2	[8.0, 10.5]
Less than once a month	23.0	[21.4, 24.7]	25.2	[23.0, 27.5]	21.1	[19.0, 23.4]
Once a month	21.0	[19.6, 22.5]	20.9	[18.9, 23.1]	21.0	[19.1, 23.1]
2–3 times a month	27.2	[25.5, 28.8]	23.5	[21.4, 25.7]	30.3	[27.9, 32.8]
Once a week	6.3	[5.4, 7.3]	5.6	[4.4, 7.0]	6.9	[5.6, 8.5]
2 or more times a week	8.0	[7.2, 8.9]	5.6	[4.8, 6.6]	10.1	[8.8, 11.6]
Daily	1.1	[0.9, 1.3]	0.7 ^E	[0.5, 1.2]	1.4	[1.0, 1.8]

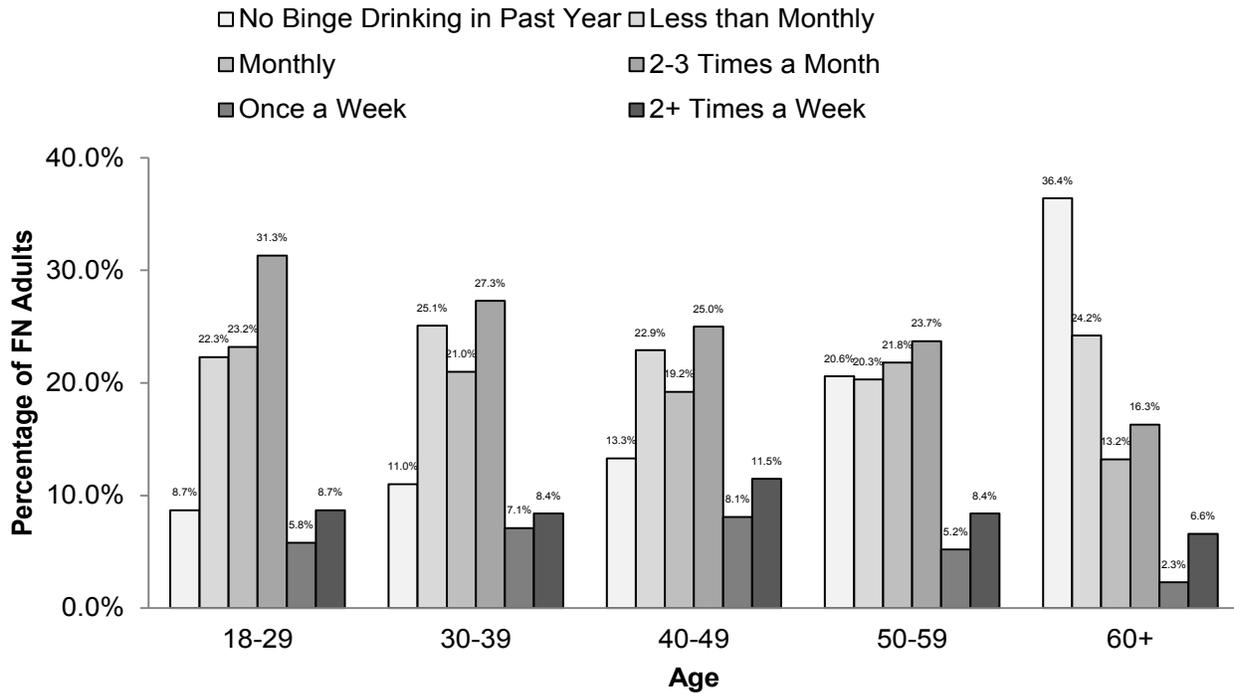
*Percentages exclude adults who did not consume alcohol in the past year.

^E: High sampling variability; use estimate with caution

Heavy drinking has been defined as binge drinking (5 or more drinks per sitting) at least once a month in the past 12 months. Approximately two-thirds (63.6%) of First Nations adults who consumed alcohol in the past 12 months met criteria for heavy drinking (see Table 8.3). A higher proportion of males met heavy drinking criteria than females.

Consistent with estimates in the general Canadian population, the proportion of adults engaging in heavy drinking was higher among young adults (69% of First Nations adults aged 18 to 29 years met criteria for heavy drinking; see Figure 8.1). However, in contrast to the general population, within which heavy drinking then declines after young-adulthood, heavy drinking remained prevalent among First Nations adults in their 30s, 40s and 50s. Almost two-thirds of First Nations adults aged 30 to 49 (63.8%) met criteria for heavy drinking. This percentage fell only slightly for those aged 50 to 59 years (59.1%). Significant reductions in heavy drinking did not occur until adults reached 60 years and older (38.4%).

Figure 8.1. Prevalence of Binge Drinking (5 or more drinks in one sitting), by Age (n = 6,124)



Note. Solid black bars represent adults who met criteria for heavy drinking in RHS 2008/10 (of those who indicated consuming alcohol in the past 12 months). Heavy drinking is defined as binge drinking (5 or more drinks in one sitting) at least once a month in the past 12 months.

Drug Use (without a prescription)

Just under one-third (32.3%, 95% CI: 30.8, 33.9) of First Nations adults reported cannabis use in the 12 months prior to RHS 2008/10 (see Table 8.4). Past year use of cannabis increased since the previous RHS (26.7%, 95% CI: 25.0, 28.5).

More than one-in-ten adults report using cannabis ‘almost daily to daily’; rates are significantly higher among males than females (16.9% vs. 7.8%; see Table 8.4).

Besides cannabis, cocaine/crack was the next most commonly used drug (7.8%); males were more likely to use cocaine/crack in the past 12 months compared to females (9.7% vs. 5.8% of females). Males were also more likely to use hallucinogens and amphetamines.

Table 8.4. Illicit Drug Use/Prescription Drug Misuse in the 12 Months prior to RHS 2008/10, by Gender

Used in the past year	Full Sample%	95%CI	Females %	95%CI	Males %	95%CI
Any illicit drug use						
No past year use	63.1	[61.4, 64.8]	70.5	[68.5, 72.5]	55.8	[53.6, 58.1]
At least 1 illicit drug used	36.9	[35.2, 38.6]	29.5	[27.5, 31.5]	44.2	[41.9, 46.4]
Cannabis						
No past year use	67.7	[66.9, 69.2]	75.9	[74.2, 77.6]	59.5	[57.3, 61.7]
Once or twice	11.1	[10.3, 11.9]	9.4	[8.5, 10.4]	12.7	[11.5, 14.1]
Monthly	3.2	[2.8, 3.7]	2.8	[2.2, 3.5]	3.6	[3.0, 4.4]
Weekly	5.6	[4.9, 6.6]	4.1	[3.2, 5.2]	7.2	[6.1, 8.5]
Daily or almost daily	12.4	[11.3, 13.5]	7.8	[6.9, 8.7]	16.9	[15.3, 18.7]
Cocaine or crack						
No past year use	92.2	[91.4, 93.0]	94.2	[93.3, 95.0]	90.3	[89.0, 91.5]
Once or twice	5.3	[4.7, 5.9]	4.0	[3.4, 4.7]	6.6	[5.6, 7.6]
Monthly	1.3	[1.0, 1.6]	0.9	[0.6, 1.2]	1.7	[1.3, 2.3]
Weekly or more	1.2	[0.9, 1.5]	1.0	[0.7, 1.3]	1.4	[1.0, 1.8]
Hallucinogens*						
Used in past year	4.1	[3.5, 4.8]	2.4	[1.9, 3.0]	5.8	[4.8, 7.0]
Amphetamines**						
Used in past year	2.8	[2.3, 3.4]	2.1	[1.7, 2.6]	3.5	[2.7, 4.6]
Sedatives or sleeping pills***						
Used in past year	5.7	[5.0, 6.5]	5.9	[5.1, 6.9]	5.6	[4.7, 6.7]
Opioids****						
Used in past year	4.7	[4.0, 5.5]	4.1	[3.4, 5.1]	5.2	[4.3, 6.3]
Inhalants (solvents, glue, gas)						
Used in past year	0.5	[0.4, 0.7]	0.5 ^E	[0.3, 0.8]	0.5 ^E	[0.4, 0.8]

*Hallucinogen category includes LSD, magic mushrooms, PCP and Special K.

**Amphetamines category includes crystal meth, speed and ecstasy.

***Use without a prescription; category includes Valium, Serepax, Rohypnol, etc.

****Category includes illicit opioid use (e.g., heroin) and non-prescription use of codeine, methadone, morphine, etc.

^E: High sampling variability; use estimate with caution

Gambling and Problem Gambling

The majority (71%) of First Nations adults have gambled (i.e., bet or spent money on bingo, card games, lottery tickets, VLT, casino, and sports games) in their lifetime. This estimate is low compared to about 75% of adults in the general Canadian population who gambled solely in the past year (Canadian Partnership for Responsible Gambling, 2010). Using the *Canadian Problem Gambling Index* (CPGI), 7.4% of First Nations adults met criteria for problem gambling, while another 31.1% met criteria for at-risk gambling (see Table 8.5). No gender differences were observed in the prevalence of at-risk or problem gambling (see Table 8.5).

Table 8.5. Prevalence of Lifetime Gambling and Problem Gambling Behaviour, by Gender

	Overall %	95%CI	Females %	95%CI	Males %	95%CI
Gambled in lifetime*						
All First Nations adults	71.1	[69.5, 72.7]	76.2	[74.6, 77.9]	66.1	[63.8, 68.3]
Problem gambling behaviour**						
Bet more than you could afford to lose	22.6	[21.1, 24.2]	20.8	[19.0, 22.8]	24.7	[22.5, 27.0]
Borrowed money to gamble	27.4	[25.7, 29.2]	28.3	[26.3, 30.5]	26.5	[24.2, 28.9]
Gambling has caused financial problems	12.8	[11.6, 14.0]	12.7	[11.1, 14.4]	12.9	[11.3, 14.6]
Problem gambling score**						
Non problem gambler	61.5	[59.7, 63.2]	62.3	[60.2, 64.5]	60.5	[57.9, 63.0]
At-risk gambler	31.1	[29.5, 32.8]	30.1	[28.1, 32.2]	32.2	[29.8, 34.7]
Problem gambler	7.4	[6.5, 8.4]	7.5	[6.4, 8.8]	7.3	[6.2, 8.6]

* Gambling is defined in the current survey as betting or spending money on lottery tickets, bingo, video lottery terminals, casinos, card games, or sports games.

** Of those who have gambled in their lifetime.

DISCUSSION

More than half (57%) of First Nations adults report smoking daily or occasionally. No change was observed in the prevalence of smoking since the RHS 2002/03. Approximately one-third of smokers made a quit attempt in the 12 months prior to the survey, with more than 75% of these individuals using an abrupt cessation method (i.e., cold turkey). Few adults reported using nicotine replacement therapies; research has revealed that methods which encourage gradual rather than abrupt smoking cessation appear to be as (or more) effective (Hughes, Solomon, Livingston, Callas, & Peters, 2010; Shiffman, Ferguson, & Strahs, 2009; Silagy et al., 2000).

Approximately one-third (35.3%) of First Nations adults were abstinent from alcohol in RHS 2008/10, a percentage higher than that observed in the general Canadian population. However, of First Nation adults who drink, almost two-thirds met criteria for heavy drinking. First Nations males appear to be at higher risk of heavy drinking (and related harms) compared to females. Heavy drinking is associated with a range of harmful effects, including various health conditions and traumatic injury. Greater efforts are needed to encourage moderate drinking among First Nations adults who choose to consume alcohol, and abstinence among those who have developed alcohol dependence.

One-third of First Nations adults reported past-year cannabis use (an increase since the RHS 2002/03) and one-in-ten report daily or almost daily cannabis use. Males appear to be at higher risk of frequent use: 17% of First Nations males versus 8% of females reported daily or almost daily cannabis use. Long-term daily or almost daily cannabis has been linked with chronic bronchitis and

other respiratory diseases (particularly when combined with cigarette smoking), psychiatric illness (such as depression, anxiety attacks, and psychosis), various forms of cancer, cognitive deficits (reducing the ability of users to concentrate, process, and remember information), harm to fetus during pregnancy, and increased risk of injury (traffic accidents; e.g., Dumont, 2005; Ferris & Wynne, 2001; Statistics Canada, 2010; Yang et al., 2007).

Research has revealed that the percentage of problem gamblers in an area is linked directly to the number of electronic gaming machines—slot machines, video lottery terminals, electronic bingo machines—per capita in that area (Afifi, Cox, Martens, Sareen, & Enns, 2010; Cox, Yu, Afifi, & Ladouceur, 2005; Smith & Wynne, 2004; Williams & Wood, 2007). Electronic gaming machines are the most addictive forms of gambling. The quick succession of small wins and losses can be psychologically reinforcing for players, reducing their ability to set limits and control behaviour, particularly among those who have experienced previous addictions (Smith & Wynne, 2004; Williams & Simpson, 2008). Approximately 40% of First Nations adults who have gambled in their lifetime are ‘at risk’ for problem gambling or are problem gamblers. Campaigns to educate residents about responsible gambling within First Nations communities, particularly those that emphasize the need to set time and monetary limits, may help to decrease prevalence of risky or problem gambling. Gambling treatment resources in First Nations communities may also need to be increased. These treatment resources may include: free confidential problem gambling counseling services (within driving range of the community), a problem gambling hotline, or gambling support groups. Finally, communities may provide residents with

information on screening one's own gambling behaviour and how to take steps to reduce potential problems.

The current results signal a need to improve intervention programs in order to reduce substance use and gambling problems among First Nations adults. Intervention efforts might have greater success if grounded in the strengths of First Nations culture. Incorporating Aboriginal culture into alcohol and drug treatment programs has been shown to increase their effectiveness (Dell et al., 2011; Herman-Stahl, Spencer, & Duncan, 2003; Whitbeck, 2006; Whitbeck, Chen, Hoyt, & Adams, 2004; Yu, Stiffman, & Freedenthal, 2005).

To reduce risky substance use and gambling behaviours strategies should go beyond change at the individual-level (Currie, Schopflocher, & Wild, 2011). Intervention efforts must be paired with changes in the social forces (e.g., racism,) and economic forces (e.g., low income, unemployment) that perpetuate these problems. For example, on average, those living in First Nation communities report lower household and personal income and higher financial need compared to those in the general Canadian population. Low household income is inextricably linked to addiction problems (McDonough & Berglund, 2003; Mossakowski, 2008; Tjepkema, 2004). Serious efforts must be made to increase the economic self-sufficiency of First Nations adults. In addition, Aboriginal peoples currently experience high levels of racism in Canadian society (Currie et al., n.d.; Environics Institute, 2010). The experience of racial discrimination is associated with substance abuse, problem gambling, and other at-risk behaviour among minority groups. Racial discrimination can lead individuals to search for ways – often including the use of substances – to cope or escape from the shame and trauma of these experiences (Chae et al., 2008; Currie et al., n.d.; Whitbeck, Hoyt, McMorris, Chen, & Stubben, 2001; Whitbeck, McMorris, Hoyt, Stubben, & Lafromboise, 2002; Williams & Mohammed, 2009). The amelioration of these types of social and economic factors will require large-scale change.

CONCLUSIONS

This chapter describes the prevalence of substance use and gambling behaviour among First Nations adults living on-reserve and in northern communities. Few improvements were observed in prevalence of substance use since the previous RHS. Rather, increases were observed in prevalence of past year cannabis use; no decline was observed with respect to rates of smoking, alcohol abstinence, or heavy drinking. Prevalence of cigarette smoking and heavy drinking remain substantially

higher among First Nations than those observed among adults in the general Canadian population. Among First Nations adults who gamble, many are 'at risk' for problem gambling or are problem gamblers. With respect to gender differences, males appear to be at greater risk for heavy drinking and drug use (cannabis, hallucinogens, cocaine/crack and amphetamines). The present chapter highlights many areas for possible intervention. Such interventions are likely to have more success with the inclusion of cultural content. Yet, great reductions in prevalence of substance use are unlikely to occur without addressing the larger economic and social factors that impact the lives of First Nations.

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Chapter 9

Sexual Health

EXECUTIVE SUMMARY

This chapter presents the most recent data on the sexual behaviour of First Nations adults living on-reserve and in northern communities, as gathered in the First Nations Regional Health Survey (RHS) 2008/10. The majority of First Nations adults reported having one sexual partner in the 12 months prior to the survey. Having multiple sexual partners was most common among younger First Nations adults, especially males. The proportion of adults using birth control or protection and having been tested for a sexually transmitted infection (STI) and HIV/AIDS was highest among younger First Nations adults. A higher proportion of First Nations females have been tested for STIs and HIV/AIDS, compared to males. Overall, condom use was the most common form of protection, with approximately 38% of sexually active First Nations adults reporting having used a condom at least once. Despite this, only one-fifth of First Nations adults reported “always” using condoms. The most commonly cited reason for not consistently using a condom was being with a steady partner. The incidence of pregnancy among younger First Nations adults was high: one-third of all First Nations adults reported having had their first child by 18 years of age. Additionally, pregnancy among younger First Nations adults appears to be increasing: a higher proportion of younger First Nations adults reported having had their first child in their teenage years compared to older First Nation adults. Generational differences were also observed in sexual orientation: a greater proportion of younger First Nations adults identified themselves as homosexual, bisexual, or two-spirited. Various risk factors for engaging in riskier sexual behaviours were also examined, primarily regarding level of personal income, level of education, and substance use.

KEY FINDINGS

- 72.1% of First Nations adults reported being sexually active. Of sexually active adults who indicated having intercourse in the past 12 months (69.8% of total population), the majority (79.3%) reported having had only one sexual partner in the past 12 months.
- Compared to First Nations adults 30 years or older, adults 18 to 29 years (particularly males) reported having more sexual partners in the past 12 months.
 - Having fewer sexual partners was associated with having graduated high school, greater income, and avoidance of controlled licit (alcohol, tobacco) and illicit substances.
- 63.9% of all First Nations adults who reported being sexually active used at least one form of birth control or protection, such as withdrawal, condoms, birth control pills, Depo Provera (injection), rhythm (natural family planning), surgery (hysterectomy, vasectomy), or other.
- Condoms were the most common form of birth control or protection, used by 38.3% of sexually active First Nations adults. With respect to frequency of condom use, approximately one-fifth (21.2%) of all First Nations adults who reported being sexually active reported “always” using a condom.
 - The proportion of those who reported “always” using a condom was lower among those with higher levels of income. This may be due to their greater likelihood of having only one sexual partner.
- The majority of First Nations parents had at least two children: 20.6% reported having one child, 44.1% reported having two or three children, 24.8% reported having four or five children, and 9.5% reported having more six or more children.
 - Lower levels of income and education were associated with having more children, whereas reported use of licit and illicit substances was associated with having fewer children.
- First Nations adults appear to be having children at a younger age. Approximately two-fifths (39.4%) of First Nations adults aged 18 to 29 reported having had their first child before the age of 19 years, compared to 16.6% of First Nations adults aged 60 years or older.
- A greater proportion of younger First Nations adults identified as being homosexual, bisexual, or two-spirited compared to older First Nations adults (4.6% for those aged 18 to 29 years vs. 1.0% for those aged 50 to 59 years).
- Approximately half of all First Nations adults who are sexually active reported having been tested for an STI (50.3%) and HIV/AIDS (40.5%). The tendency to undergo a test appeared to decrease as age increased.
 - A greater proportion of females reported being tested for an STI and HIV/AIDS compared to males ([58.0% vs. 43.7%] and [49.9% vs. 32.5%], respectively).
 - The proportion of adults who have undergone testing was higher among those who use substances versus those who do not use substances.

INTRODUCTION

Data on sexual behaviour says a lot about the holistic mental, physical, spiritual, and emotional health of First Nations adults. For instance, mental health may be demonstrated through self-care behaviors when intimate (e.g., use of protection/birth-control), physical health may be demonstrated through rates of sexually transmitted disease and infection, spiritual health may be demonstrated through views on reproduction, and emotional health may be demonstrated through the presence of stable, loving relationships. The purpose of this chapter is to summarize some of the more current findings regarding the sexual health of First Nations adults living on reserve and in northern communities.

Research has revealed that sexual activity with multiple partners is likely to facilitate the spread of STIs and contribute to related complications, such as infertility (Eng & Butler, 2007; Reading, 2009). Compared to adults in the general Canadian population, a greater proportion of First Nations adults report having had more than three sexual partners in the previous 12 months: 5.6% vs. 13%, respectively (First Nations Information Governance Committee [FNIGC], 2005; Health Canada, 2009). Additionally, a higher proportion of First Nations males report having multiple sexual partners compared to First Nations females (FNIGC, 2005). The gender discrepancy in number of sexual partners is similar to that observed in the general Canadian population (FNIGC, 2005; Health Canada, 2009).

Regarding the prevalence of STIs and HIV/AIDS, statistically sound data specific to First Nations populations are largely unavailable. Although the Public Health Agency of Canada (PHAC) collects data on confirmed laboratory cases of STIs, including HIV/AIDS, chlamydia, gonorrhea, and infectious syphilis, submitted by each province and territory, data on ethnicity is missing for most cases. Moreover, the data that are available do not discriminate between First Nations, Inuit, and Métis (Health Canada, 2009). Nonetheless, data do suggest that the rates of some STIs are higher among First Nations than among the general Canadian population. For example, the rate of genital chlamydia among First Nations adults is almost seven times that of the rate in the general Canadian population (Health Canada, 2003). If left untreated, genital chlamydia can cause serious complications, including pelvic inflammatory disease and infertility (Westrom, Joesoef, Reynolds, Hagdu, & Thompson, 1992).

AIDS within First Nations communities also appears to

be problematic. A study by the Public Health Agency of Canada demonstrated that Aboriginal Canadians, including First Nations, Inuit, and Métis peoples, continue to be overrepresented: Aboriginal peoples make up 3.8% of the Canadian population but account for 7.5% of all prevalent HIV infections. Additionally, rates of HIV infection appear to be on the rise: prior to 1991, only 1.3% of Aboriginal people were HIV-positive, compared to 13% in 2002 (Public Health Agency of Canada [PHAC], 2007; Statistics Canada, 2008). Finally, Aboriginal females appear to be at a greater risk of contracting HIV than females in the general Canadian population, as 19.9% of HIV cases in the general Canadian population were females, compared to 45.3% of HIV female cases among the Aboriginal population (Health Canada, 2002, 2005).

Along with higher rates of STIs among First Nations adults, prevalence of unplanned pregnancies is also high. One-third of First Nations adults have their first child by 18 years of age (FNIGC, 2005). Birth rates among First Nations people are significantly higher than those of the general Canadian population among those aged 15 to 19 years, 20 to 24 years, and 25 to 29 years (Health Canada, 2005). In addition to having children at a younger age, First Nations adults also have more children than do adults in the general Canadian population. According to Indian and Northern Affairs Canada (2000), the average number of children for the registered on-reserve Aboriginal population was almost double that of the general Canadian population, at 2.1 children per family.

Higher rates of STIs and pregnancy can be addressed with greater use of protection. Past research has revealed that many First Nations adults, especially younger First Nations adults, report the use of birth control or protection. Despite these findings, use appears to be inconsistent, as few First Nations adults report that they “always” use condoms (FNIGC, 2005). Consistent with this, other research has revealed that rates of condom use during one’s last sexual encounter are lower among Aboriginal people than among Canadians in general (Devries, Free, & Jategaonker, 2007; Devries, Free, Morison, & Saewyc, 2009a, 2009b; van der Woerd et al., 2005).

This chapter presents the most recent findings regarding the sexual behaviours of First Nations adults living on-reserve and in northern communities. These findings include sexual activity, risky sexual behaviours, protective sexual behaviours, sexual orientation, and reproduction. Past research has shown that sexual behaviours are associated with lifestyle, such as substance use, and socio-economic status, including employment status and

level of income (BC Ministry of Education, 2005; Devries et al., 2009a, 2009b; Statistics Canada, 1998); thus, the present chapter will also assess the impact of common risk factors for engaging in risky sexual behaviours to help pinpoint areas for possible intervention.

METHODS

Sexual Activity

First Nations adults aged 18 or older were asked whether they were sexually active and, if so, whether they had been sexually active within the 12 months prior to the survey. Those who reported “yes” were then asked how many partners they had had. Responses to this question were coded as “one partner,” “two or three partners,” and “four or more partners.”

Birth Control and Protection

All respondents who reported being sexually active were asked to report which of the following birth control or protective methods they used: withdrawal, condoms, birth control pills, Depo Provera (injection), rhythm (natural family planning), surgery (hysterectomy or vasectomy), or none; respondents could select more than one response. Respondents were then asked how often they used condoms, with “always,” “most of the time,” “occasionally,” and “never” being response options. Those who did not report “always” using a condom were asked to choose from a list of possible reasons why: “your partner didn’t want to use one,” “you were under the influence of alcohol or drugs,” “your partner doesn’t have HIV/AIDS,” “you or your partner wanted to get pregnant,” “you couldn’t afford to buy condoms,” “you were with your steady partner,” “you didn’t have a condom at the time,” “you thought you were safe,” “you didn’t think of using a condom”; respondents could select more than one response.

Reproduction

Respondents who reported being sexually active were asked to report how many children they had given birth to or fathered. Responses were coded as “one child,” “two to three children,” “four to five children,” and “six or more children.” Those who reported having at least one child were asked to report the age at which they had their first child, and responses were coded as “12 to 15 years,” “16 to 18 years,” “19 to 25 years,” and “26 years or older.”

Sexual Orientation

Respondents were asked whether they identified as being homosexual, bisexual, or two-spirited.

STIs and HIV/AIDS Testing

Respondents were asked whether they had ever been tested for an STI or HIV/AIDS.

Covariates

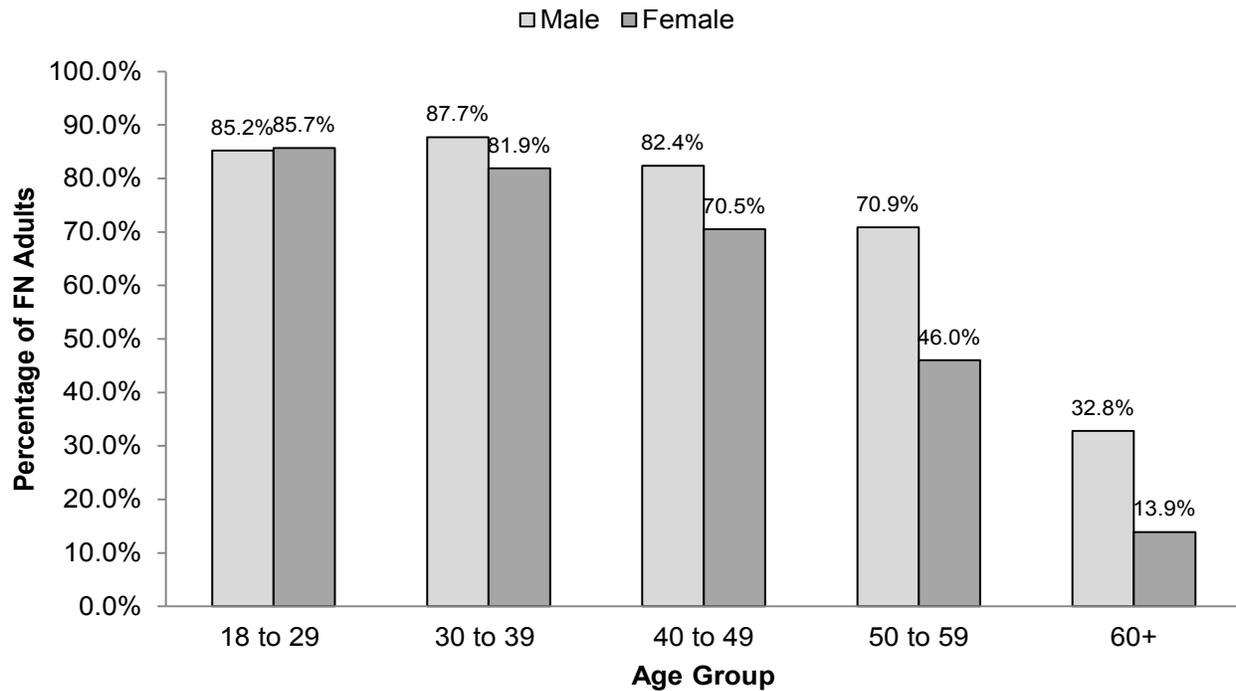
The association of sexual behaviours with level of education, level of personal income, and substance use was examined. High school education was coded as a dichotomous variable (i.e., 2 categories), and responses were coded as “did not complete high school” and “completed high school.” Level of personal income was created as a dichotomous variable; responses were coded as “less than \$20,000 per year” and “\$20,000 per year or more.” Substance use and abuse variables were current smoker (yes/no), binge drinking (five or more drinks on one occasion) in the 12 months prior to the survey (yes/no), cannabis use in the 12 months prior to the survey (yes/no), and other drug use (cocaine, amphetamines, hallucinogens, sedatives, opioids) in the 12 months prior to the survey (yes/no).

RESULTS

Current Sexual Activity

Just under three-quarters (72.1%, 95% CI [70.8, 73.4]) of all First Nations adults reported being sexually active (see Figure 9.1).

Figure 9.1. Proportion of First Nations Adults who are Sexually Active, by Age and Gender



Number of Sexual Partners

Of the First Nations adults who reported having had sexual intercourse in the 12 months prior to RHS 2008/10, the majority reported having had only one sexual partner (79.3%, 95% CI [77.3, 88.1]). The number of sexual partners varied by age and gender; a lower proportion of younger adults—those aged 18 to 29 years—in particular males, report having had only one sexual partner in the past 12 months compared to other adults (see Table 9.1).

The proportion of First Nations adults who reported having had one sexual partner was lower among those who did not graduate high school compared to those who did graduate from high school (76.5% vs. 83.1%). On the other hand, the proportion of adults with 2-3 partners (12.9% vs. 17.4%) and 4+ partners (4.0% vs. 6.1%) was higher among those who did not graduate high school compared to those who did.

Table 9.1. Sexual Partners in Past 12 Months, by Age and Gender (among those who have had sexual intercourse in the past 12 months, n = 5103)

Age group	Gender	One partner	Two to three partners	Four or more partners
18–29	male	61.7	25.8	12.5
	female	73.0*	20.0	7.0*
30–39	male	82.1	12.0	5.9
	female	82.1	16.8	1.2*
40–49	male	81.9	14.0	4.1
	female	91.3	8.4	F
50–59	male	89.2	6.7	4.2
	female	97.1*	F	F
60+	male	92.5	4.7	F
	female	98.7*	F	F

Note. F = Estimate not provided because of small sample size (n < 5). * significantly different within age categories (p < 0.05)

The proportion of First Nations adults who reported having only one sexual partner in the past 12 months was higher among those with an income of \$20,000 or more compared to those with a personal annual income of less than \$20,000 (84.8% vs. 72.9%). In contrast, the proportion of adults having 2-3 sexual partners was higher among those with an income of less than \$20,000 versus more than \$20,000 (20.6% vs. 10.9%).

The proportion of sexually active adults that had more than one partner in the past 12 months was higher among those who currently smoke (24.4% vs. 15.2%), who have used cannabis in the past 12 months (35.1% vs. 11.1), who consumed alcohol in the past 12 months (25.4 vs. 7.2%), who had used an illicit drug in the past 12 months (other than cannabis, 45.4% vs. 15.0%), and those who engaged in heavy alcohol use (32.5% vs. 12.7%), compared to those who do not engage in these behaviours.

Birth Control and Protective Methods

Approximately two-thirds (63.9% (95% CI [62.0, 65.8]) of First Nations adults who reported being sexually active also reported using at least one form of birth control or protection from the following list: withdrawal, condoms, birth control pills, Depo Provera (injection), rhythm (natural family planning), surgery (hysterectomy or vasectomy). Use of birth control or protection was greater among younger First Nations adults than among older adults. No gender differences were observed.

Condoms were the most common form of birth control or protection used, reported by 38.3% of all First Nations adults. More than one in ten First Nations adults reported using birth control pills (13.6%) or surgery (11.9%). All other forms of birth control and protection were reportedly used by fewer than 10% of all First Nations adults.

Condom use appeared to decline with age: 67.8% of First Nations adults (who were sexually active) aged 18 to 29 years reported using condoms, compared to 41.8% of those aged 30 to 39 years and 23.9% of those aged 40 to 49 years. Birth control use among females also declined with age: 24.3% of First Nations females aged 18 to 29 years reported using birth control or protection, compared to 15.9% of females aged 30 to 39 years. Rates of surgery as a form of birth control or protection increased with age: 19.3% of First Nations females aged 30 to 39 years reported using surgery, compared to 31.4% of females aged 40 to 49 years.

Reported use of birth control and protection was not associated with level of personal income. However, a higher proportion of First Nations adults who graduated from high school indicated using at least one form of birth control or protection, compared to those that did graduate from high school.

A higher proportion of First Nations adults who are current smokers, who engaged in binge drinking in the past 12 months, and who used illicit drugs in the past 12 months reported using birth control or protection, compared to those who did not report using these licit and illicit substances.

Condom use

Approximately one-fifth (21.2%, 95% CI [19.6, 23.0]) of First Nations adults who reported being sexually active also reported “always” using a condom.

A higher proportion of adults with a lower income (less than \$20,000) reported ‘always’ using a condom compared to those with a higher income (\$20,000 or

more) (24.4% vs. 15.6%). No difference in ‘always’ using condoms was observed among those with or without a high school diploma. The most common reason First Nations adults gave for not “always” using a condom was that they were with a steady partner (60.0%, 95% CI [57.8, 62.1]); all other reasons for not using a condom were reported by fewer than 10% of all First Nations adults. Noteworthy is the fact that 8.1% (95% CI [6.9, 9.5]) of First Nations adults reported not “always” using a condom because their partner did not want to use one.

Reported reasons for not “always” using a condom varied according to level of education, level of personal income, and substance use. A higher proportion of First Nations adults who reported using licit or illicit substances, not having graduated from high school, or having a lower personal income reported that they did not always use a condom because their partner did not want to use one (compared to those who reported having graduated from high school, a higher income, and no substance use, $p < 0.05$). In contrast, a lower proportion of First Nations adults who reported using licit or illicit substances, not having graduated from high school, or having a lower personal income reported that they did not always use a condom because they had a steady partner (compared to those who reported having graduated from high school, a higher income, and no substance use, $p < 0.05$). Finally, a higher proportion of adults who use illicit or licit drugs reported not “always” using a condom because they did not have a condom at the time (compared to those who did not report substance abuse; $p < 0.05$).

Number of Children

The majority (77.8%) of First Nations adults reported having at least one child. One in five (20.6%) First Nations parents had one child; 44.1% had two to three children; 24.8% had four to five children; and 9.5% reported having six or more children.

Number of children varied by the parents’ levels of education and personal income. A higher proportion of First Nations adults who graduated from high school reported having 2-3 children, and lower proportion of adults who graduated high school reported having 4+ children, compared to those who did not graduate ($p < 0.05$).

A higher proportion of First Nations adults who reported binge drinking, cannabis use, or other drug reported having 0-1 children compared to those who did not report substance use ($p < 0.05$).

Age at Birth of First Child

Of the First Nations adults who reported having had a child, 3.5% reported having had their first child at the age of 12 to 15 years, 28.3% reported having had their first child at the age of 16 to 18 years, 54.0% reported having had their first child at the age of 19 to 25 years, and 14.2% reported having had their first child above the age of 25. Additionally, more recent generations appear to have their first child at an earlier age: 39.4% (95% CI [35.0, 44.0]) of First Nations adults aged 18 to 29 reported having had their first child before age 19, compared to 16.6% (95% CI [12.6, 21.6]) of First Nations adults aged 60 or older.

Levels of education and personal income were associated with the age at which First Nations adults reported having their first child. The proportion of First Nations adults who had their first child between 13-18 years of age was lower among adults who completed high school, and had a higher personal income (compared to those who did not complete high school or had lower personal income). In contrast, the proportion of those having a first child after 25+ years of age was higher among those who completed high school and had a higher personal income.

Substance use was also associated with the age at which First Nations adults reported having had their first child. The proportion of adults who had their first child between 13-18 years was higher among those who smoke cigarettes, use cannabis, and use other drugs (compared to those who did not currently smoke, use cannabis, or use other drugs). In contrast, the proportion of those having a first child after 25+ years of age was higher among those who do not currently smoke, use cannabis, or use other drugs.

Sexual Orientation

The proportion of First Nations adults living in First Nations communities who reported being homosexual, bisexual, or two-spirited was slightly higher than that of the general Canadian population (2.7%, 95% CI [2.3, 3.3] vs. 1.5% [Statistics Canada, 2004], respectively). Additionally, identifying as a homosexual, bisexual, or two-spirited individual was more common among younger First Nations adults: 4.6% (95% CI [3.4, 6.3]) First Nations adults aged 18 to 29 years identified as homosexual, bisexual, or two-spirited, compared to 1.0% (95% CI [0.6, 1.6]) of First Nations adults aged 50 to 59 years.

STIs and HIV/AIDS Testing

Approximately half of all First Nations adults who are sexually active reported having been tested for an STI (50.3%) or HIV/AIDS (40.5%). The tendency to undergo

a test for an STI or HIV/AIDS appeared to decrease after the age of 40; 58.6% of First Nations adults aged 18 to 29 years and 59.3% of First Nations adults aged 30 to 39 years reported being tested, compared to 41.4% of those aged 40 to 49 years, 30.5% of those aged 50 to 59 years, and 23.7% of those aged 60 or older. Additionally, a higher proportion of females than males report having been tested for an STI (58.0% vs. 43.7%, 95% CIs [55.1, 60.9] and [40.9, 46.5%], respectively) and HIV/AIDS (49.9% vs. 32.5%, 95% CIs [47.1, 52.7] and [29.9, 35.2], respectively).

No associations were observed between the frequency of STI or HIV/AIDS testing and levels of education and personal income.

Although a greater proportion of First Nations adults who reported engaging in substance use, including binge drinking, cigarette smoking, cannabis use, and other drug use, reported having more than one sexual partner in the 12 months prior to RHS 2008/10 (compared to those who do not use substances), they were also more likely to report being tested for an STI. A higher proportion of adults who indicated engaging in binge drinking, current smoking, using cannabis, and using other illicit drugs reported having been tested for an STI, compared to those who did not report having engaged in any of these behaviours. The same pattern was seen with respect to testing for HIV/AIDS.

DISCUSSION

This chapter presents much-needed data regarding the sexual behaviours of First Nations adults living on reserve and in northern communities. One of the more notable findings was high rates of pregnancy among young adult First Nation females. Social norms within First Nations communities may help to partially explain the high birth rates observed among younger First Nations adults, as well as their inconsistent use of birth control and protection. Small-scale qualitative research has identified that First Nations females report ambivalence, or even a positive connotation, towards becoming pregnant, revealing that teen pregnancy is acceptable (Devries & Free, 2011). Additionally, the perception that one is ready to have children appears to differ between First Nations communities and the general population. Many younger First Nations adults feel that having a steady relationship is enough reason to have a child, rather than waiting to complete their education or establish their income (Devries & Free, 2011). Many Aboriginal adults also had children at a younger age, suggesting that teen pregnancy is a subject

that community members may be reluctant to address (Devries & Free, 2011). These results suggest that the efforts required to delay pregnancy among younger First Nations adults are likely to require interventions aimed at shifting social norms within First Nations communities.

High birth rates are also influenced by spirituality. Traditionally, sexuality is thought of as a life-creating force between men and women, with children being considered gifts from the Creator. These cultural and spiritual values may make it more challenging for community members attempting to shift social norms regarding childbirth, as a critical response to pregnancy might be viewed as disrespectful.

Regarding use of birth control and protection, data from RHS 2008/10 indicate that First Nations adults who have more sexual partners are more likely to use birth control or protection and to have been tested for STIs. These findings suggest that many First Nations adults are aware of the risks that may be linked with having multiple sexual partners. Unfortunately, data from other sources suggest that the use of birth control or protection is not reflected in lower rates of STIs; rates of genital chlamydia and HIV appear to be higher among First Nations adults than among adults in the general Canadian population. Again, as with rates of pregnancy, a possible explanation for this is that although First Nations adults report using birth control or protection, such measures may not be used consistently. Various reasons, including being with a steady partner, not wanting to use it, or being under the influence of licit and illicit substances, may explain this. Increasing awareness about the importance of consistent use of protection to lower the risk of STIs may be one area in need of enhanced intervention efforts.

Finally, the findings of RHS 2008/10 highlight socio-economic factors that are strongly associated with sexual behaviour. It is clear that lower levels of education and personal income are associated with engaging in riskier sexual behaviours. These results reinforce the fact that determinants of health are deep-rooted. Socio-economic disparities, along with other traumas suffered by First Nations people, including sexual abuse, colonization, residential schools, and racism, have been shown to lead to feelings of having less control over one's destiny—including feelings of loneliness and isolation, which affect self-esteem and self-efficacy—resulting in a reduced desire to engage in protective efforts or avoid risky sexual behaviours (Reading, 2009). Population-specific sexual health interventions must be developed with these factors in mind; it is unlikely that interventions that are not culturally sensitive to these issues will

have a great impact within First Nations communities.

CONCLUSIONS

The most recent phase of the RHS reveals both areas of celebration and areas in need of further improvement regarding the sexual health of First Nations adults living in First Nations communities. The majority of First Nations adults report being in a monogamous relationship, report using birth control or protection at least sometimes, and appear to view risky sexual behaviours such as having multiple sexual partners as a reason to increase the use of birth control or protection and the frequency of testing for STIs. On the other hand, a greater proportion of First Nations adults living on-reserve or in northern communities report having multiple sexual partners and having children at a younger age compared to adults in the general Canadian population. All of these findings are influenced to some degree by cultural, lifestyle, and socio-economic factors. Despite the complex influence of many variables on the sexual health of First Nations adults, this chapter highlights starting points for research, reveals areas in which more research is required, and suggests possible areas for intervention efforts.

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Chapter 10

Chronic Health Conditions

EXECUTIVE SUMMARY

This chapter explores the prevalence and determinants of chronic health conditions among First Nations adults aged 18 years or older living on-reserve and in northern communities. Results revealed that 62.6% of First Nations adults reported having been diagnosed with at least one chronic health condition. The prevalence of chronic health conditions and co-morbid chronic health conditions (two or more chronic health conditions) increased with age. By age 60, approximately half of First Nations adults have been diagnosed with four or more chronic health conditions. For the majority of chronic health conditions assessed, prevalence was higher among First Nations women. The most common chronic health conditions reported by First Nations adults were high blood pressure, diabetes, arthritis, and back pain. Since the previous First Nations Regional Health Survey (2002/03), a higher proportion of First Nations adults reporting having been diagnosed with high blood pressure (21.8% vs. 13.4%), stomach and intestinal problems (9.8% vs. 7.7%), and learning disabilities (3.6% vs. 2.2%). Those living with at least one chronic health condition appeared to fare less well than those living without a chronic health condition. Disparities were found with respect to level of education, paid employment, health behaviours (e.g., physical activity, drug abuse), perceived life balance (i.e., physical, emotional, mental), symptoms of depression, and suicide ideation and attempts. Fortunately, unlike in findings from RHS 2002/03, First Nations adults with at least one chronic health condition were no more likely than those without a chronic health condition to report perceiving barriers to health care. Due to the difficulties faced by those with a chronic health condition, there is a great need to improve the health status of First Nations adults who are at risk for, or who have been diagnosed with, a chronic health condition.

KEY FINDINGS

- The majority (62.6%) of First Nations adults reported having at least one chronic health condition. No change in prevalence of having at least one chronic health condition was observed since RHS 2002/03 (61.6%).
- The most commonly reported chronic health conditions were high blood pressure (21.8%), arthritis (19.9%), allergies (18.0%), back pain (16.2%), and diabetes (16.2%).
- Since the RHS 2002/03, a higher proportion of First Nations adults have been diagnosed with high blood pressure (21.8% vs. 13.4%), stomach and intestinal problems (9.8% vs. 7.7%), and learning disabilities (3.6% vs. 2.2%).
- Similar to that observed in RHS 2002/03, a greater proportion of First Nations women reported having at least one chronic health condition (66.0%), compared to First Nations men (59.3%).
- Prevalence of chronic health conditions and co-morbidity of chronic health conditions increased with age.
- A higher proportion of those with at least one chronic health condition reported their health as “fair” or “poor” (33.6% vs. 6.5%), and reported their health as having worsened in the past year (19.4% vs. 6.0%), compared to those with no chronic health conditions.
- A higher proportion of First Nations adults with at least one chronic health condition (compared to those without a chronic health condition):
 - were overweight (79.2% vs. 67.5%),
 - were rarely physically active (50.3% vs. 39.7%),
 - reported moderate or high depression (34.4% vs. 20.8%),
 - reported suicidal thoughts (24.3% vs. 17.7%),
 - reported suicide attempts (14.9% vs. 9.5%),
 - reported use of opioids (5.0% vs. 3.6%) and sedatives/sleeping pills (6.3% vs. 3.7%) without a prescription.
- A higher proportion of First Nations adults without a chronic health condition (compared to those with at least one chronic health condition):
 - were physically active (64.9% vs. 58.9%).
- Overall, the majority (68.3%, 95% CI [66.2, 70.3]) of those who had been diagnosed with a chronic health condition had undergone treatment for their chronic health condition. A higher proportion First Nations women (compared to men) had sought treatment for their chronic health condition (72.4% vs. 63.8%).
- Those who did not seek treatment for their chronic health condition did not report more perceived barriers to accessing health care than those who did seek treatment.

INTRODUCTION

There is substantial evidence that the health status of First Nations adults is poorer than that of the general Canadian population (Allard, Wilkins, & Berthelot, 2004; Anand et al., 2001; Macaulay, 2009). First Nations adults have higher rates of chronic health conditions, including diabetes, back pain, high blood pressure, and arthritis (Dyck, Osgood, Lin, Gao, & Stang, 2010; Statistics Canada, 2004; First Nations Information Governance Committee, 2005). There are many reasons why First Nations people living in First Nations communities are at a higher risk of developing chronic health conditions. For instance, many determinants of health, that is, variables predictive of good health, such as education, paid employment, access to health care, personal health practices, and freedom from discrimination, are more difficult to obtain within First Nations communities (Health Canada, 2009). Disparity in these and other determinants of health, including substance abuse and obesity, leave First Nations adults at risk for developing chronic health conditions.

Ongoing health surveillance in First Nations communities is essential for determining the prevalence of chronic health conditions, recognizing emerging health problems, identifying risk factors and determinants of health, and identifying changes over time. Accurate and up-to-date health information is required to set priorities, guide resource allocation, and evaluate the success of policies and programs already in place.

This chapter provides a summary of the First Nations Regional Health Survey (RHS) 2008/10 data on chronic health conditions among First Nations adults living in First Nations communities, and compares these data with RHS 2002/03. The distribution of twenty-eight chronic health conditions and their variation by demographic characteristics, such as age and gender, was assessed. This chapter also compares First Nations adults with and without chronic health conditions on various risk factors and determinants of health, including income, education, obesity, and substance use. Finally, perceptions of barriers to health care services are also assessed.

METHODS

Analyses are based on data from First Nations adults aged 18 years or older living in First Nations communities. First Nations adults were asked whether they had been told by a health professional that they had any of the following chronic health conditions: arthritis, chronic back pain, rheumatism, osteoporosis, asthma, chronic bronchitis, emphysema, allergies, cataracts, glaucoma,

blindness or serious vision problems that could not be corrected with glasses, hearing impairment, epilepsy, psychological or nervous disorders, cognitive or mental disability, Attention Deficit Disorder/Attention Deficit-Hyperactivity Disorder (ADD/ADHD), learning disability, heart disease, high blood pressure, effects of stroke (brain hemorrhage), thyroid problems, cancer, liver disease (excluding hepatitis), stomach or intestinal problems, HIV/AIDS, hepatitis, tuberculosis, or diabetes.

Participants' responses to the chronic health condition variables were recoded to create a dichotomous variable (2 categories): at least one chronic health condition versus no chronic health condition. Similarly, treatment seeking was also dichotomized into undergoing treatment for chronic health condition versus not undergoing treatment for chronic health condition. To assess co-morbidity of the chronic health conditions, participants were categorized as having zero, one, two, three, or four or more chronic health conditions.

Cross-tabulations were used to assess whether those with at least one chronic health condition differed from those with no chronic health conditions with respect to the health-related variables/behaviours included or derived from RHS data [age, gender, substance use (cigarette smoking, alcohol consumption, illicit drug use), perceived life balance (physical, emotional, mental, spiritual), and suicide ideation, suicide attempts and use of traditional medicine], Percentages and 95% confidence intervals (95% CI) are reported.

RESULTS

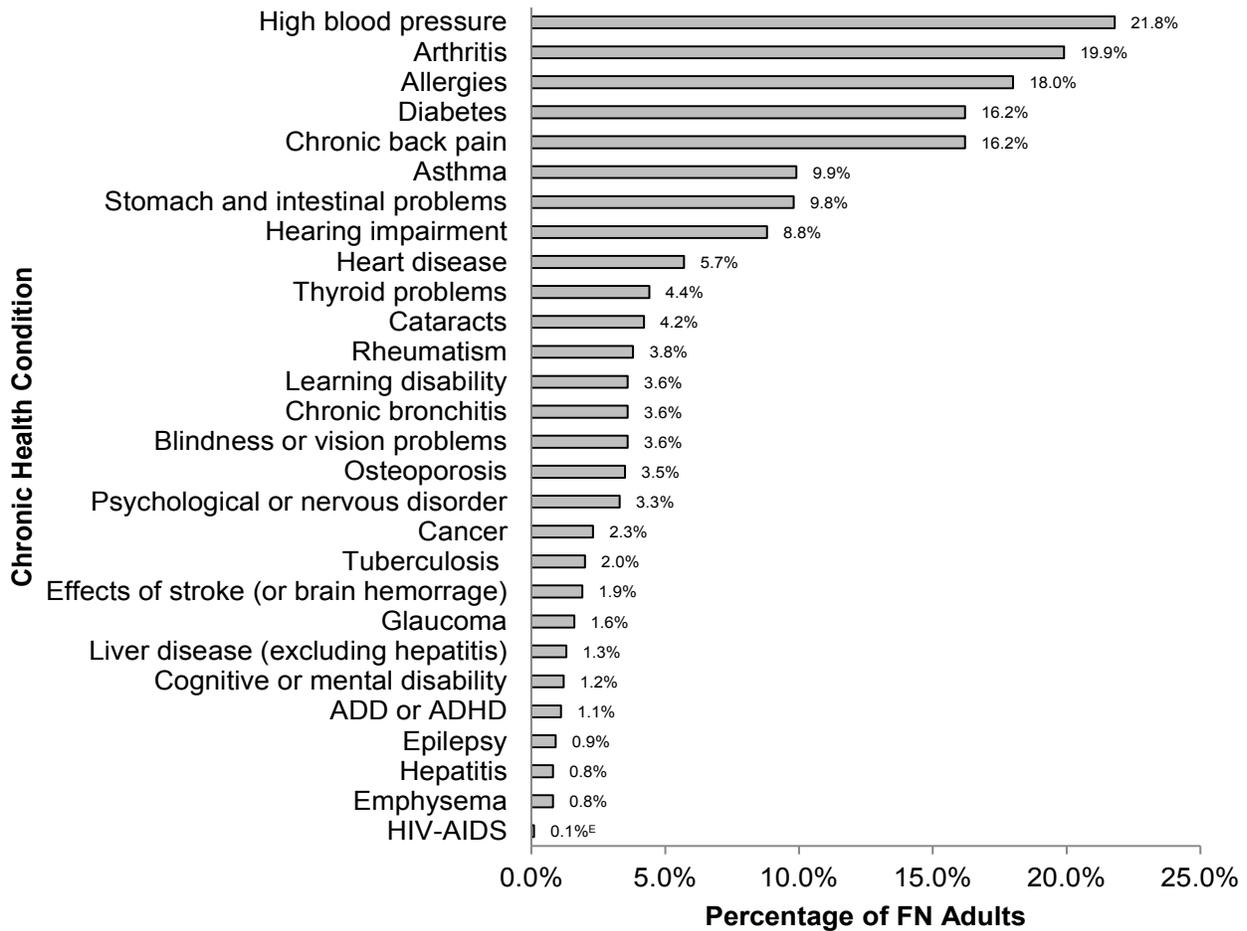
Prevalence of Chronic Health Conditions

Prevalence of chronic health conditions

The majority of First Nations adults reported having been diagnosed with at least one chronic health condition (62.6%, 95% CI [60.9, 64.3]). No change was observed since RHS 2002/03 (61.6%, 95% CI [59.6, 63.7]). Figure 10.1 provides a summary of the prevalence of the chronic health conditions. The most commonly reported chronic health conditions were high blood pressure (21.8%), arthritis (19.9%), allergies (18.0%), chronic back pain (16.2%), and diabetes (16.2%).

Since the RHS 2002/03, a higher proportion of First Nations adults reporting having been diagnosed with high blood pressure (21.8% vs. 13.4%) stomach and intestinal problems (9.8% vs. 7.7%), and learning disabilities (3.6% vs. 2.2) (95% CIs [20.6, 23.0], [12.3, 14.7], [9.1, 10.7], [6.7, 8.7], [3.0, 4.4], [1.7, 2.7] respectively).

Figure 10.1. Prevalence of Chronic Health Conditions



^E High sampling variability. Use figure with caution.

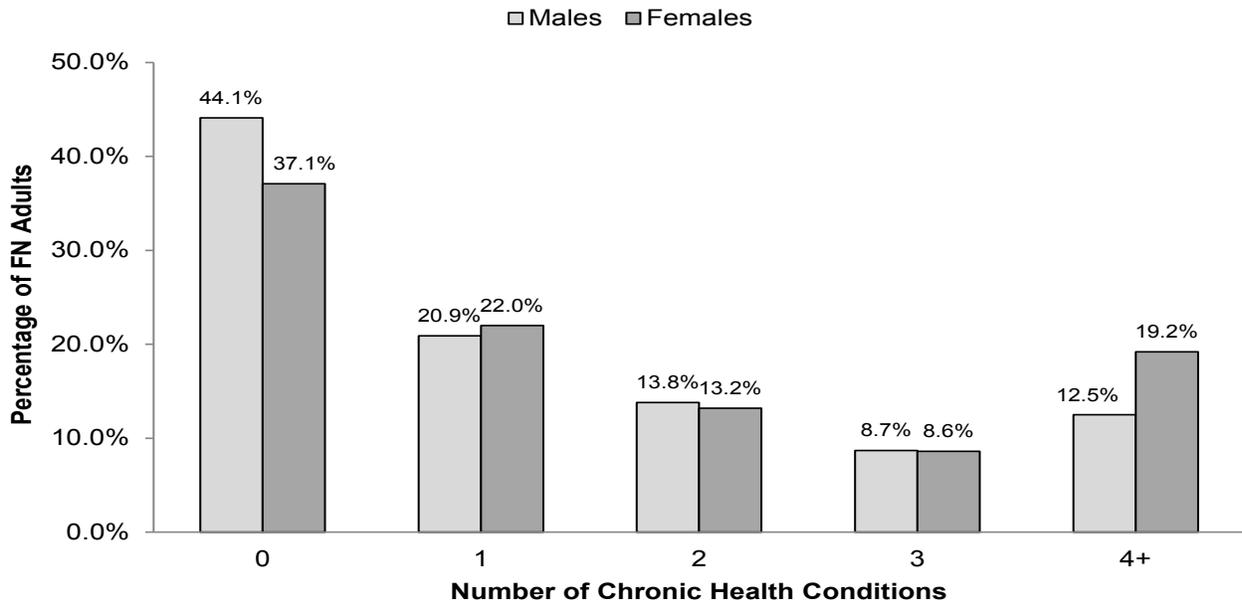
Distribution by gender

Gender differences were observed in the prevalence of chronic health conditions. Overall, a higher proportion of First Nations women reported having at least one chronic health condition, compared to men (66% vs. 59.3%). However, some variation in the distribution of chronic health conditions among First Nations men and women was observed when looking at specific chronic health conditions. For instance, a higher proportion of First Nations women reported having been diagnosed with diabetes (18.0% vs. 14.5%), allergies (23.0% vs. 13.1%), arthritis (24.1% vs. 15.9%), and osteoporosis (5.6% vs. 1.3%). In contrast, a higher proportion of First Nations men reported having been diagnosed with heart disease (6.7% vs. 4.2%), effects of stroke (2.5% vs. 1.5%), and hepatitis (1.0% vs. 0.5%).

Co-morbidity of chronic health conditions by gender

Almost 40% of First Nations adults reported having more than one chronic health condition: 13.5% reported two chronic health conditions; 8.6% reported three chronic health conditions; and 15.8% reported having four or more chronic health conditions (95% CIs [12.5, 14.5], [7.9, 9.4], and [14.8, 16.8], respectively). First Nations women appeared to be at a particularly high risk of co-morbidity: almost 20% of First Nations women reported having four or more health chronic health conditions, compared to 12.5% of men (see Figure 10.2).

Figure 10.2. Number of Chronic Health Conditions, by Gender

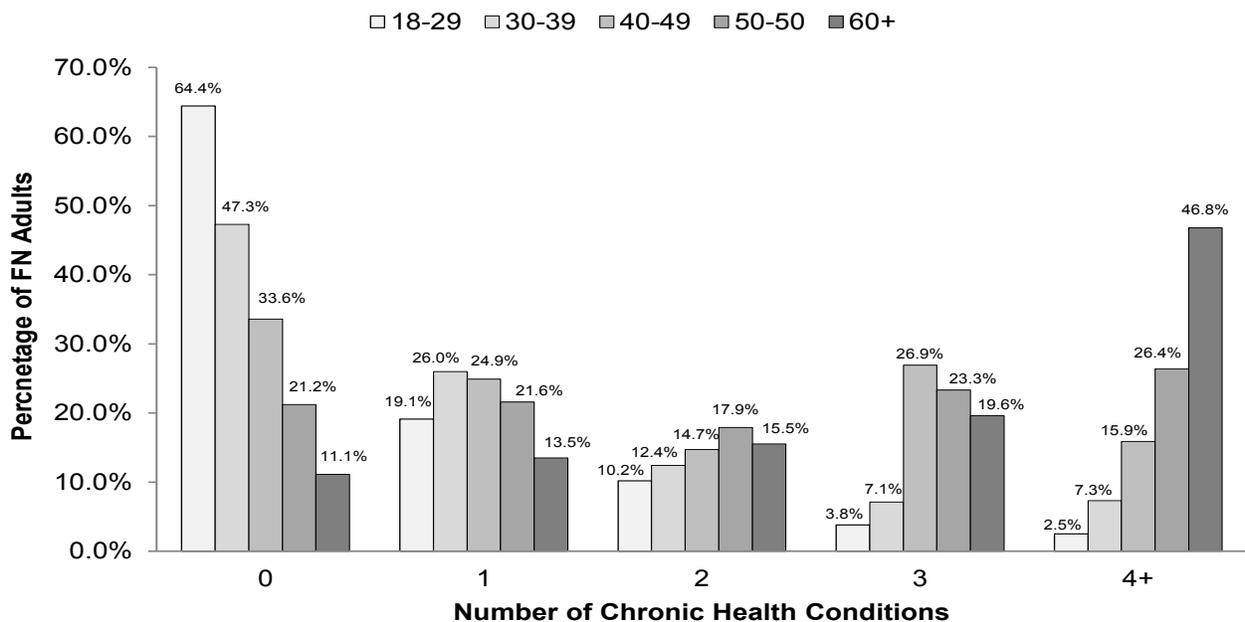


Co-morbidity of chronic health conditions by age

First Nations adults were sub-categorized into five age groups: 18–29, 30–39, 40–49, 50–59 and 60-plus years. As age increased, the percentage of First Nations adults reporting no chronic health conditions decreased from approximately 65% of those aged 18 to 29 to 11% of those aged 60 or older (see Figure 10.3). The number of First Nations adults reporting four or more chronic

health conditions increased with age, ranging from 2.5% of those aged 18 to 29 years to nearly 50% of those aged 60 years or older. Although reports of having one chronic health condition remained fairly constant across all age ranges, reports of more than one chronic health condition increased substantially, from 26.8% to 57.7%, between those 30 to 39 years and those 40 to 49 years.

Figure 10.3. Number of Chronic Health Conditions, by Age



Chronic health conditions and perceptions of health

When First Nations adults were asked to rate their health, a higher proportion of those with at least one chronic health condition reported their health as being 'fair to poor' (33.6% vs. 6.5%) and reported their health as having worsened in the past year (19.4% vs. 6.0%), compared to those without a chronic health condition.

Chronic Health Conditions and Determinants of Health*Chronic health conditions and employment and education*

For the most part, a lower proportion of First Nations adults with a chronic health condition had graduated from high school or were currently working for pay (compared to those without a chronic health condition).

Chronic health conditions and risky behaviours

Alcohol use. For the most part, no difference was observed in the proportion of First Nations adults who reported binge drinking (defined as five or more drinks per drinking occasion) among those with and without a chronic health condition, with the exception of those with liver disease. A higher proportion of First Nations adults with liver disease reported binge drinking in the past year compared to those without liver disease (28.7% vs. 15.2%).

Cigarette smoking. Overall, a lower proportion of First Nations adults with a chronic health condition reported that they currently smoke, compared to those without a chronic health condition (53.6% vs. 61.4%). However, exceptions were observed: a higher proportion of those with chronic back pain (61.8% vs. 55.9%), psychological or nervous disorders (65.7% vs. 56.3%), and hepatitis (73.4% vs. 56.5%) reported that they are current smokers, compared to those without these chronic health conditions.

Illicit drug use. Overall, a lower proportion of First Nations adults with a chronic health condition reported past year use of cannabis (26.5% vs. 40.0%), cocaine (47.7% vs. 52.3%), amphetamines (46.9% vs. 53.1%), and hallucinogens (3.4% vs. 5.0%), compared to those without a chronic health condition.

A higher proportion of First Nations adults with a chronic health condition indicated use of opioids (5.0% vs. 3.6%) and sedatives/sleeping pills (6.3% vs. 3.7%) without a prescription, compared to those without a chronic health condition.

Chronic health conditions and obesity

A higher proportion of First Nations adults with a chronic health condition were overweight/obese/morbidly-obese, compared to those without a chronic health condition (79.2% vs. 67.5%).

Chronic health conditions and health behaviours

Balanced meals. A higher proportion of First Nations adults with a chronic health condition reported having difficulty affording balanced meals, compared to those without a chronic health condition (46.2% vs. 35.3%).

Activity level. A higher proportion of First Nations adults with a chronic health condition reported that they are rarely physically active, compared to those without a chronic health condition (50.3% vs. 39.7%).

Past-year check-up. A higher proportion of First Nations adults with a health chronic health condition reported that they had a complete physical exam (47.6% vs. 30.4%), a cholesterol test (50.0% vs. 20.2%), a vision test (59.9% vs. 45.0%), a blood pressure test (75.3% vs. 46.4%) and a blood sugar test (66.4% vs. 35.8%), compared to those without a chronic health condition.

Chronic health conditions and life balance

A lower proportion of First Nations adults with a chronic health condition reported feeling balanced physically (69.1% vs. 80.4%), emotionally (70.7% vs. 77.7%), and mentally (73.6% vs. 78.7%), compared to those without a chronic health condition.

Chronic health conditions and depression and suicide

A higher proportion of First Nations adults with a chronic health condition reported moderate to high levels of depression (34.4% vs. 20.8), reported suicide ideation (24.3% vs. 17.7%), and reported suicide attempts (14.9% vs. 9.5%), compared to those without a chronic health condition.

Chronic health conditions and residential schools

A higher proportion of First Nations adults who attended residential school reported having been diagnosed with at least one chronic health condition, compared to those who did not attend residential schools (76.1% vs. 59.1%).

Chronic health conditions and treatment

Overall, the majority of First Nations adults who reported having been diagnosed with a chronic health condition

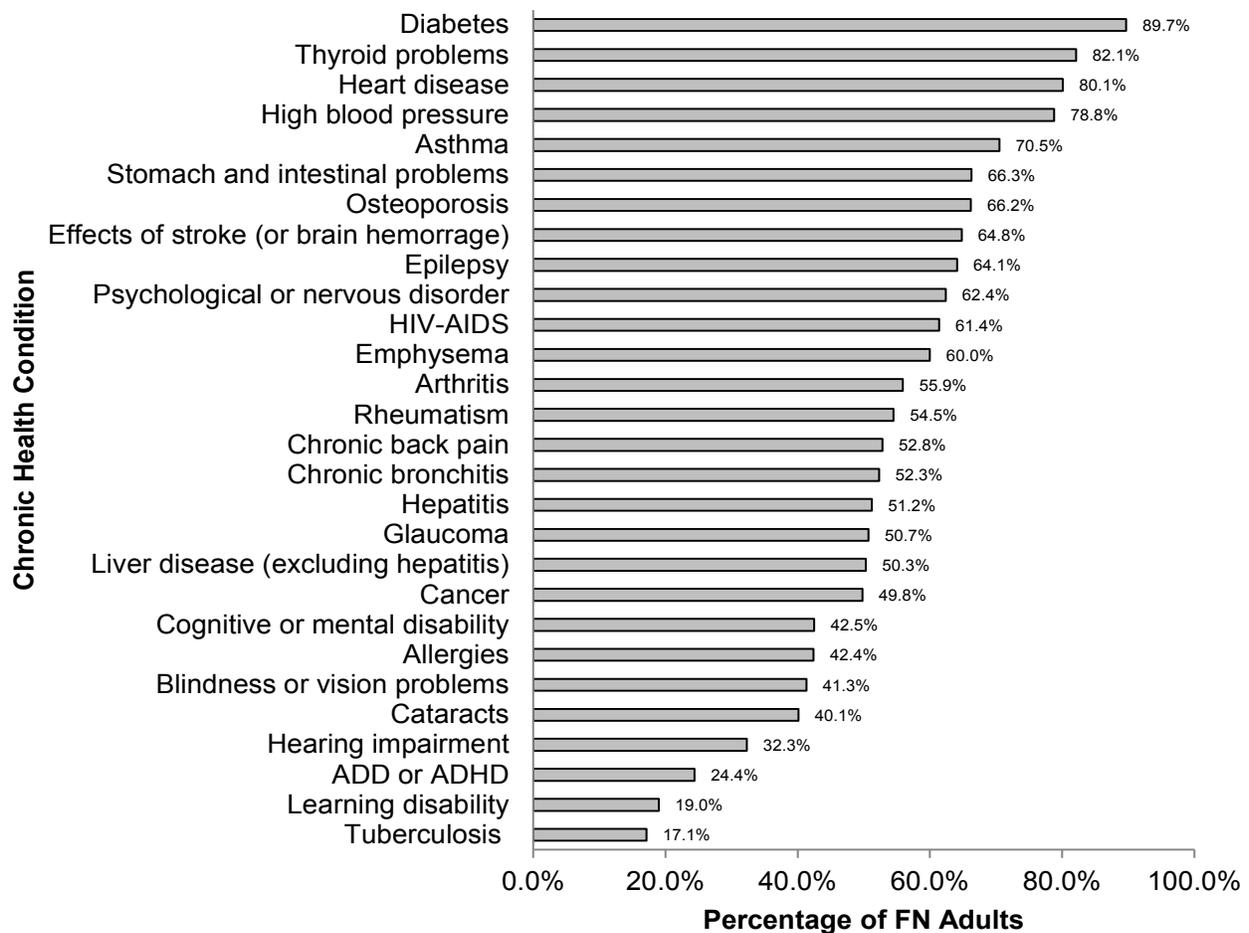
also reported that they were currently undergoing treatment or taking medication for their chronic health condition (68.3%, 95% CI [66.2, 70.3]); however, large variation in treatment seeking was observed among those with different chronic health conditions (see Figure 10.4).

Gender differences in treatment seeking. A higher proportion of First Nations women with a chronic health condition reported undergoing treatment, compared to men (72.4% vs. 63.8%).

Traditional healers. A higher proportion of First Nations with a chronic health condition reported having visited a traditional healer, compared to those who do not have a chronic health condition (43.2% vs. 26.9%).

Accessing treatment. First Nations adults with a chronic health condition who did not seek treatment did not report experiencing more barriers to treatment (e.g., having too far to travel, no nurse or doctor available in the area, waiting list too long, difficulty accessing health services provided by the Non-Insured Health Benefits program), compared to those who do not have a chronic health condition.

Figure 10.4. Percentage of First Nations Adults with a Chronic Health Condition Seeking Treatment



DISCUSSION

Results from RHS 2008/10 revealed a high prevalence of chronic health conditions among First Nations adults living in on-reserve and in northern communities. Sixty-three percent of First Nations adults reported having at least one chronic health condition, the most common being high blood pressure, arthritis, back

pain, or diabetes. Co-morbidity of chronic health conditions was also common. By age 60, approximately half of the First Nations adult population reported having four or more chronic health conditions.

First Nations adults with at least one chronic health condition are at a disadvantage in many ways compared to those who do not have a chronic health condition.

A higher proportion of those with a chronic health condition did not graduate from high school, did not working for pay, were rarely physically inactive, were overweight/obese/ morbidly-obese, had misused prescription drugs, had difficulty affording balanced meals, reported less life balance (physical, emotional, or mental balance), reported moderate/severe depression, and had thought about or attempted suicide.

Despite the above challenges facing those with chronic health conditions, positive results were also observed—in particular with respect to seeking treatment. Although treatment-seeking behaviour varied according to chronic health conditions, the majority of First Nations adults reported seeking treatment for their chronic health condition.

It must be noted that because of the cross-sectional nature of this survey, the causal nature of the chronic health conditions remains unknown. For instance, it is unknown whether the above determinants of health caused the chronic health conditions (e.g., obesity predicts diabetes), whether the chronic health conditions caused the above determinants of health (e.g., experiencing a stroke leads to less physical activity), or whether both the above determinants of health and the chronic health conditions are caused by a third factor. However, it is clear that those who reported having at least one chronic health condition are at a clear disadvantage compared to those who did not report having a chronic health condition. These individuals appear to have less access to resources to help them overcome these chronic health conditions and improve their overall health.

Results from RHS 2008/10 have revealed a number of areas in which improvements can be made to decrease the risk of developing chronic health conditions and improve the health status of those with chronic health conditions within First Nations communities. These findings help to define areas that are particularly problematic, such as high rates of diabetes and high blood pressure, and could be used to assist in the development of intervention programs designed to decrease the risk factors, such as obesity and difficulty affording balanced meals, associated with these chronic health conditions among First Nations adults.

CONCLUSIONS

The majority of First Nations adults living on-reserve and in northern communities reported having been diagnosed with at least one chronic health condition. Rates of high blood pressure, diabetes, and co-morbidity of chronic health conditions are particularly high. These findings are concerning as First Nations adults with a chronic

health condition not only face the difficulties associated with the chronic health condition itself but also are more likely to face other barriers related to good health, putting them in a particularly challenging position when trying to improve their overall health. Fortunately, many First Nations adults who have been diagnosed with a chronic health condition report having undergone treatment.

The current findings reveal that much effort is still required to prevent the development of chronic health conditions among First Nations adults and to improve the health of those already diagnosed with a chronic health condition.

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Chapter 11

Diabetes

EXECUTIVE SUMMARY

Type 2 diabetes continues to be a significant health problem of among First Nations adults aged 25 years or older. The age-standardized prevalence of diabetes in the First Nations Regional Health Survey (RHS) 2008/10 for First Nations adults age 25 years or older (20.7%) has not changed since RHS 2002/03, when it was reported to be 20.1%. Strong positive associations between diabetes and both increasing age and higher body mass index (BMI) remained evident, and the presence of diabetes tended to be greater among First Nations females than among males. Comparisons to the general Canadian population demonstrated that First Nations adults across all age categories have higher proportions of diabetes. The majority of those with diabetes are currently undergoing some form of treatment/taking medication. No clear associations between diabetes and various lifestyle factors could be established, with only modest differences in nutrition, and traditional lifestyle practices reported. Unfortunately, the proportions of both those with diabetes and those without reporting inadequate nutrition was significant. The prevalence of complication and co-morbidity related to diabetes are high, contributing to significant economic and social burdens on individuals, families, and First Nations communities. Although in the period of time between RHS 2002/03 and RHS 2008/10 substantial resources have been directed towards education, prevention, screening, and treatment for First Nations adults with diabetes, measureable improvements were modest at best. Bold action and a renewed effort will be required to reverse this devastating epidemic.

KEY FINDINGS

- 16.2% of First Nations adults reported that they had been diagnosed with diabetes.
- The age-standardized prevalence of diabetes (to match that of the general Canadian population) was 20.7% for adults aged 25 years or older.
- The prevalence of diabetes increased as age and body mass index (BMI) increased.
- Those with diabetes demonstrated a high co-morbidity across a range of health conditions, including retinopathy (36.0%), problems with kidney function (18.0%), neuropathy (33.5%), circulation problems (29.2%), lower limb problems (23.0%), infections (14.5%), and amputation (2.4%).
- Those with type 2 diabetes aged 55+ reported a number of health conditions at a much higher proportion than did those without diabetes of similar age, including glaucoma (3.3% vs. 7.7%); liver conditions, excluding hepatitis (1.9% vs. 4.6%); stroke (4.8% vs. 10.4%); heart disease (14.5% vs. 29.1 %); and hypertension (38.4% vs. 66.1%).
- More than half (53.6%) of all those with diabetes were currently attending a diabetes clinic or seeing someone (MD, nurse, etc.) for diabetes education.
- 50.8% of adults with diabetes reported checking blood sugar at least once per day, while 19.6% had not checked at all in the two weeks prior to the survey.
- 89.7% of those with diabetes reported seeking treatment.
- Diet (64.6%) and pills (72.9%) were the most frequently reported therapies.
- The proportion of First Nations adults with diabetes who reported exercising as a form of treatment to manage their diabetes decreased in the time period between RHS 2002/03 and RHS 2008/10 from 52.9% to 48.3%, while the percentage taking insulin increased from 16.7% to 22.9%.
- Traditional medicines were used by 11.7% of First Nations adults with diabetes.
- More adults with diabetes reported almost always/always eating a nutritious balanced diet, compared to those without diabetes (36.4% vs 30.1%).
- Fewer people with type 2 diabetes participated in walking (76.5% vs. 83.4%) or hunting and trapping (16.3% vs. 23.3%) than did those without type 2 diabetes.
- Adults with type 2 diabetes were more likely to be sedentary than those without diabetes, with 18.9% reporting they spent most of a typical day sitting, compared to 12.8% of those without type 2 diabetes.

INTRODUCTION

The diabetes epidemic among First Nations adults has emerged fairly recently, quickly growing to proportions that represent a considerable threat to the well-being of First Nations individuals and communities. There are three types of diabetes—type 1, type 2, and gestational; all forms share a dysregulated glucose, fat, and protein metabolism but differ in their method of insulin resistance and insulin deficiency in producing the diabetic state.

Type 1 diabetes is an autoimmune disorder characterized by the progressive destruction of pancreatic β -cells¹, accounting for approximately 10% of all diabetes cases. It usually has a younger age of onset than type 2 diabetes. Maturity onset diabetes of the young (MODY) is a heritable form of diabetes that disrupts insulin production. It is caused by a defect in a single gene, differentiating it from type 2 diabetes, which is caused by the complex interplay of numerous genes. MODY accounts for approximately 5% of all diabetes cases. Clinically, MODY is similar to type 1 diabetes, although there is continued partial insulin secretion and normal insulin sensitivity. MODY is observed in the Oji-Cree of the Sandy Lakes region and partly explains the high prevalence and early age of onset of diabetes in this community (Hegele et al., 2003). Type 2 diabetes is a heterogeneous metabolic disorder characterized by insulin resistance and a progressive decrease in insulin secretion from the pancreas. Insulin resistance is a condition in which normal levels of insulin are insufficient to produce a normal insulin response from fat, muscle, and liver cells. Type 2 diabetes is the most common form of diabetes observed in First Nations communities.

Virtually unknown 50 years ago, type 2 diabetes has emerged rapidly in the First Nations population in Canada (Young, Reading, Elias, & O'Neil, 2000). Diabetes in First Nations populations has an earlier age of onset, progresses more rapidly, and is associated with greater complications than diabetes among the general Canadian population. Contrary to findings for the general Canadian population, among First Nations peoples type 2 diabetes is more prevalent among females than males. Additionally, up to 30% of type 2 diabetes cases remain undiagnosed (Young & Mustard, 2001), affecting estimates of the prevalence of diabetes based on self-reported data. The RHS 2008/10 used self-reporting to assess the prevalence of type 2 diabetes, while estimates of the prevalence of diabetes from the National Diabetes Surveillance System (NDSS) were based on records of an individual receiving medical care related to type 2 diabetes, excluding

¹ Beta-cells.

women with gestational diabetes. The NDSS reported on the presence of diabetes in First Nations individuals from British Columbia only. A number of studies have shown that individuals with type 2 diabetes incur higher health care utilization and associated costs (Johnson, Pohar, Secnik, Yurgin, & Hirji, 2006; Pohar & Johnson, 2007). For example, in 2010 alone, the economic burden of type 2 diabetes in Canada was estimated at \$12.2 billion (Canadian Diabetes Association, 2010).

The distribution of type 2 diabetes among First Nations populations in Canada varies by ancestry and geographic location (Delisle, Rivard, & Ekoe, 1995). There is a higher rate of diabetes in First Nations adults who live on-reserve or in northern communities than among First Nations adults who do not live in First Nations communities. According to RHS 2002/03, approximately 25% of First Nations adults aged 45 years or older living in First Nations communities reported having type 2 diabetes (First Nations Information Governance Committee [FNIGC], 2005). The presence of diabetes is generally greater among First Nations adults living in more southern locations than in more northern locations (Waldram, Herring, & Young, 2006). However, recent evidence suggests that the rates of type 2 diabetes and related cardiovascular disease risk factors are increasing among the Inuit (Chateau-Degat et al., 2010; Kuhnlein, Receveur, Soueida, & Egeland, 2004). Type 2 diabetes is also generally more prevalent in eastern communities than western communities in Canada (FNIGC, 2005). In the general Canadian population, the prevalence of diabetes among adults increased by 21% over the period between 2002–03 and 2006–07, to an overall prevalence of 6.2% (Public Health Agency of Canada [PHAC], 2009).

The Public Health Agency of Canada predicts that the number of Canadians with diabetes will increase at an annual rate of 6% over the next five years. In British Columbia, the percentage of First Nations adults with diabetes was 6.7% in 2006–07, 40% higher than the overall provincial prevalence of 4.8%. Among First Nations adults in British Columbia who were 70 to 79 years old, the prevalence of type 2 diabetes was 30%, compared to 22% for the general British Columbian population of the same age. The prevalence of diabetes among First Nations adults in British Columbia increased 15.5% over the period between 2002–03 and 2006–07, a slower rate of increase than seen in the general population of British Columbia (PHAC, 2009).

In RHS 2002/03, the prevalence of type 2 diabetes was reported to be five times higher among First Nations females than among females in the general Canadian

population (First Nations Centre, 2004). In Saskatchewan, close to 50% of First Nations females aged 60 years or older had type 2 diabetes (Dyck, Osgood, Lin, Gao, & Stang, 2010). Women who developed gestational diabetes were at a heightened risk of developing type 2 diabetes in the future. A study from the Sioux Lookout Zone in Ontario found that 70% of First Nations females diagnosed with gestational diabetes developed type 2 diabetes within three years (Mohamed & Dooley, 1998). In the general Sioux Lookout Zone population, the transition from gestational diabetes to type 2 diabetes ranged from 25% to 60% over 10 years (Kim, Newton, & Knopp, 2002). The higher rate of gestational diabetes among First Nations females was linked to higher birth weight, resulting in a higher rate of type 2 diabetes in their children in the future (Egeland, Skjarven, & Irgens, 2000). While associations between higher birth weight and a greater risk of type 2 diabetes have been documented in a number of populations (Egeland et al., 2000), it is difficult to assess the unique contribution of the intrauterine environment, common genetic dispositions, and a shared post-natal obesogenic environment to future type 2 diabetes risk (Kuh, Ben-Shlomo, Lynch, Hallqvist, & Power, 2003).

One of the more striking characteristics of the epidemic of type 2 diabetes in First Nations communities is the younger age of onset. First Nations individuals tend to develop type 2 diabetes in their 40s, while in the general Canadian population the age of onset tends to be in the 70s (Dyck et al., 2010). Adolescents are more frequently diagnosed with type 2 diabetes in First Nations communities than in the general Canadian population (Young, 2003). In First Nations youth living in First Nation communities, five girls are diagnosed with type 2 diabetes for every boy (Dean, 1998). This is consistent with the greater prevalence of childhood obesity particularly evident among First Nations girls (Ball & McCargar, 2003; Young, Dean, Flett, & Wood-Steiman, 2000). An earlier age of onset of diabetes is usually related to future disease-related complications, which eventually contribute to a decreased quality of life and increased mortality rate (Manuel & Schultz, 2004).

What Causes Type 2 Diabetes?

The development of type 2 diabetes is initially characterized by an increased production of insulin by the pancreas to overcome insulin resistance. Over time, this results in a loss of insulin-producing cells and eventually leads to high blood sugar, ultimately resulting in a diagnosis of diabetes. Insulin resistance can begin without indication and years in advance of the diagnosis of diabetes, a period that is referred to as

pre-diabetes and that may involve other health issues (Porte & Kahn, 2001). A number of health problems related to insulin resistance have been termed “metabolic syndrome,” since they are often found together.

The components of metabolic syndrome include abdominal obesity, hypertension, dyslipidemia², and insulin resistance. These conditions all predispose an individual to an increased risk of both type 2 diabetes and cardiovascular disease, a common complication of diabetes (Alberti et al., 2009). The prevalence of metabolic syndrome is significantly higher in the First Nations population than in the general Canadian population (Pollex et al., 2006). Some experts indicate that obesity, metabolic syndrome, and type 2 diabetes are part of a single disease continuum, the common feature of which is insulin resistance, and that a diet characterized by a high consumption of sugar and refined carbohydrates is implicated (Zimmet, 2000).

Insulin resistance is also referred to as “glucose intolerance,” since the capacity to normally metabolize glucose is diminished. As carbohydrate-rich foods are the primary source of glucose, insulin resistance can also be defined by the fact that the ability to normally metabolize carbohydrate foods has been impaired. There is an emerging theory that carbohydrate intolerance should be the operative definition of the conditions related to insulin resistance, since they respond well to carbohydrate-restricted diets (Volek & Feinman, 2005). This observation may be particularly important for First Nations people with diabetes, as the typical diet of most First Nations people was low in carbohydrate content until very recently (Cordain et al., 2005). The current consensus on dietary management of type 2 diabetes, however, remains focused on a diet high in carbohydrates (Canadian Diabetes Association, 2008), with the American Diabetes Association guidelines including a low-carbohydrate diet as a valid option for weight loss (American Diabetes Association, 2011). The Canadian Diabetes Association guidelines do not recommend low-carbohydrate diets; however, regarding Aboriginal diabetes, reference is made to the fact that a low-carbohydrate diet approach may be especially suitable for the prevention and treatment of diabetes in First Nations adults because of the relatively low carbohydrate content of their traditional diets (Canadian Diabetes Association, 2008).

² Dyslipidemia is a metabolic disorder characterized by elevation of total blood cholesterol, “bad” low-density lipoprotein (LDL) cholesterol and triglycerides, and a decline of “good” high-density lipoprotein (HDL) cholesterol.

Recent scientific inquiry suggests that metabolic shifts in response to type 2 diabetes and related conditions such as obesity are likely driven by dietary change. Specifically, the shift in macronutrients towards more carbohydrate consumption, especially refined carbohydrates, and the rise in caloric sweeteners are being examined. The consumption of large quantities of sugars and refined carbohydrates is a relatively recent phenomenon in the history of human nutrition (Gross, Li, Ford, & Liu, 2004). Examination of food disappearance data from the United States suggests that the consumption of sugar and other caloric sweeteners has risen sharply over the same time period that diabetes rates have climbed (United States Department of Agriculture, Economic Research Service, 2010). Other research has demonstrated that the removal of sugar and refined carbohydrates from the diet of individuals who have insulin resistance, manifested as obesity, metabolic syndrome, or type 2 diabetes, effectively resolved these conditions to the extent that cardio-metabolic markers were normalized as medications were reduced or discontinued (Yancy, Froy, Chalecki, Vernon, & Westman, 2005).

There is an emerging body of evidence implicating the chronic overconsumption of fructose in the development of insulin resistance and, potentially, type 2 diabetes and cardiovascular disease (Basciano, Federico, & Adeli, 2005). Excessive fructose has been implicated in the development of insulin resistance, dyslipidemia, hypertension, gout, and fatty liver (Basciano, 2005; Choi & Curhan, 2008; Hwang, Ho, Hoffman, & Reaven, 1987; Ouyang et al., 2008). Examination of food disappearance data from the United States demonstrated a significant rise in fructose consumption over recent decades, beginning in the mid-1970s when techniques to mass-produce high fructose corn syrup were developed, leading to the addition of large quantities of fructose to the general food supply (Marriott, Cole, & Lee, 2009). Although fructose and glucose are both molecular building blocks of sugar, they have distinct metabolic effects. Oral-dosing studies in overweight individuals have shown that the consumption of fructose, but not glucose, can cause a significant worsening of metabolic problems (Stanhope et al., 2009). A major source of fructose in the diet of Native Americans is sweetened beverages (Wharton & Hampl, 2004).

Theories to explain the rise in type 2 diabetes among First Nations adults have largely focused on lifestyle changes, observed as First Nations adults acquired the conveniences and foods of modern Western life (Drewnowski & Specter, 2004). This is coupled with the idea that they also possess “thrifty genes,” making them more susceptible to the hazards of excess calories

and reduced physical activity (Neel, 1962). Thrifty genes were thought to represent an evolutionary advantage for hunter-gatherer populations, allowing them to efficiently store fat during times of plenty to better survive times of deprivation. Unfortunately, during times of constant plenty, individuals with thrifty genes will over-store fat and suffer the health consequences (Neel, 1962).

The thrifty-gene hypothesis has been challenged for a number of reasons, but it continues to influence our understanding of the problem long after its first proponent, James Neel, opposed it (Neel, 1999; Speakman, 2008). The recent emergence of type 2 diabetes in both the First Nations and the general Canadian populations would suggest an environmental, not a genetic, change occurring over the past few decades. While thrifty genes were first proposed to explain a higher prevalence of diabetes among indigenous populations worldwide, non-indigenous populations are observing large increases in the prevalence of type 2 diabetes as well (Zimmet, Alberti, & Shaw, 2001). For example, in the United States, the age-adjusted prevalence of diabetes more than doubled from 2.8% in 1988 to 5.9% in 2008 (Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Interview Statistics, 2010). In China, the prevalence of obesity and type 2 diabetes has been increasing (Yang et al., 2010), and the overweight and obese in China now represent more than a fifth of the world total (Wu, 2006).

It is, therefore, reasonable to suggest that recent dietary changes have contributed significantly to the rise of type 2 diabetes in the First Nations adult population. People whose traditional diet consists of game, fish, seafood, and edible wild plants are now eating a diet rich in sugar and refined carbohydrates, the very foods now being implicated in the etiology of type 2 diabetes. Since sugar, in its many forms, is 50% fructose, the amount of fructose consumed by First Nations people may be an important factor in driving this epidemic (Wharton & Hampl, 2004).

METHODS

This chapter highlights the emerging trends related to the prevalence of diabetes among First Nations adults that are evident through RHS 2002/03 and RHS 2008/10. The prevalence and characteristics of disease can now be compared over two successive regional health surveys. Since these two surveys represent quantitative changes in characteristics and determinants of disease that have been well articulated in the past and are now well understood, the major focus of this report will be on social and environmental factors that help

us understand why First Nations adults are suffering from a prevalence of diabetes that was unheard of only a few decades ago. Data from RHS 2008/10 and RHS 2002/3 was also compared with First Nations data from the NDSS, and to data for the general Canadian population. Age standardization was completed using 1991 Census of Canada data to enhance comparability with other population datasets. The RHS 2002/03 report used 2001 Census data for age standardization. Data from RHS 2002/03 used in this report were recalculated using 1991 Census data so that valid comparisons could be made with the data from RHS 2008/10.

Prevalence of diabetes. Respondents were asked if they had been diagnosed with diabetes in their lifetime (yes/no) and if so, what type of diabetes they were diagnosed with [response options (multiple choice permitted): Type 1, Type 2, gestational]. Female diabetics were asked if they were pregnant when first diagnosed with diabetes.

Treatment of diabetes. Respondents with diabetes were then asked what kind of treatment or measures they are using to manage their diabetes. Response options (multiple choice permitted): diet, exercise, insulin, pills, traditional medicines, and traditional ceremonies/help from healer.

Checking blood sugar. Respondents with diabetes were asked how often they checked their blood sugar in the past 2 weeks. Response options: more than once a day, once a day, 10-13 times, 6-9 times, 2-5 times, and not at all.

Impact of diabetes. Those with diabetes were asked to indicate what impact they have observed. Response options (multiple choice permitted): prompted you to adopt a healthier lifestyle, which includes a good diet and/or exercise; affected your vision (e.g., retinopathy), affected your kidney function, affected your circulation other than your heart, affected the feelings in your hands and feet (e.g., neuropathy), affected lower limbs, resulted in infections, and resulted in amputation.

Diabetes education. Respondents with diabetes were asked if they are currently attending a diabetes clinic or seeing someone (MD, nurse, etc.) for diabetes education (yes/no). If no, respondents were asked why this is [response options (multiple choice permitted): no longer require diabetes education, I already have the information I need; I don't have sufficient information about where to go; a diabetes health specialist is not available in my area; could not afford it; direct health care costs; transportation costs; childcare costs; felt the health service for diabetes would be inadequate; felt the health service for diabetes would be culturally inappropriate; and chose not to attend].

Covariates of diabetes:

Body mass index (BMI) was calculated using the following formula:

$$\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m)}^2}$$

For this analysis, BMI was classified according to standard Canadian guidelines (Health Canada, 2003). Individuals with a BMI greater than or equal to 25 kg/m² but less than 29.9 kg/m² were considered to be overweight; those with a BMI greater or equal to 30 kg/m² but less than 39.9 kg/m² were considered to be obese; and those with a BMI greater than or equal to 40 kg/m² were considered to be morbidly obese.

Level of physical activity was based on total energy expenditure (EE), calculated using the following formula:

$$\text{EE} = \sum(\text{Ni} * \text{Di} * \text{METi} / 365 \text{ days})$$

Ni = number of occasions of activity i in a year,
Di = average duration in hours of activity i, and
METi = a constant value for the metabolic energy cost of activity i.

Frequency and duration of physical activities were reported for the 12 months prior to the survey, and the metabolic equivalent value (MET value) of each activity was independently established (Ainsworth et al., 2000).

For this analysis, adults with energy expenditures of less than 1.5 kcal/kg/day were considered to be inactive; those with energy expenditures between 1.5 kcal/kg/day and 2.9 kcal/kg/day were considered to be moderately active; and those with energy expenditures of 3 kcal/kg/day or greater were considered to be active.

RESULTS

Prevalence. In RHS 2008/10, 16.2% (95% CI [±1.2]) of First Nations adults reported that they had been diagnosed with diabetes. The age-standardized prevalence among First Nations adults aged 25 and over was 20.7%. Of those who reported having diabetes, 9.4% reported that they had type 1 diabetes, 80.8% reported that they had type 2 diabetes, and 5.8% reported that they had gestational diabetes (95% CIs [±3.1], [±2.7], and [±1.5], respectively; see Figure 11.1).

Prevalence by age and gender. The prevalence of diabetes in First Nations adults was associated with an increase in age (see Figure 11.2) and BMI (see Figure 11.3). First Nations women reported a higher prevalence of diabetes than did men, contrary to the pattern observed in the general Canadian population (see Figure 11.2)

Figure 11.1. Type of Diabetes reported by those with Diabetes

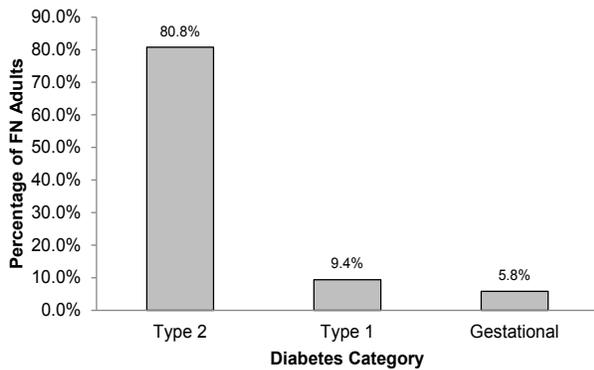
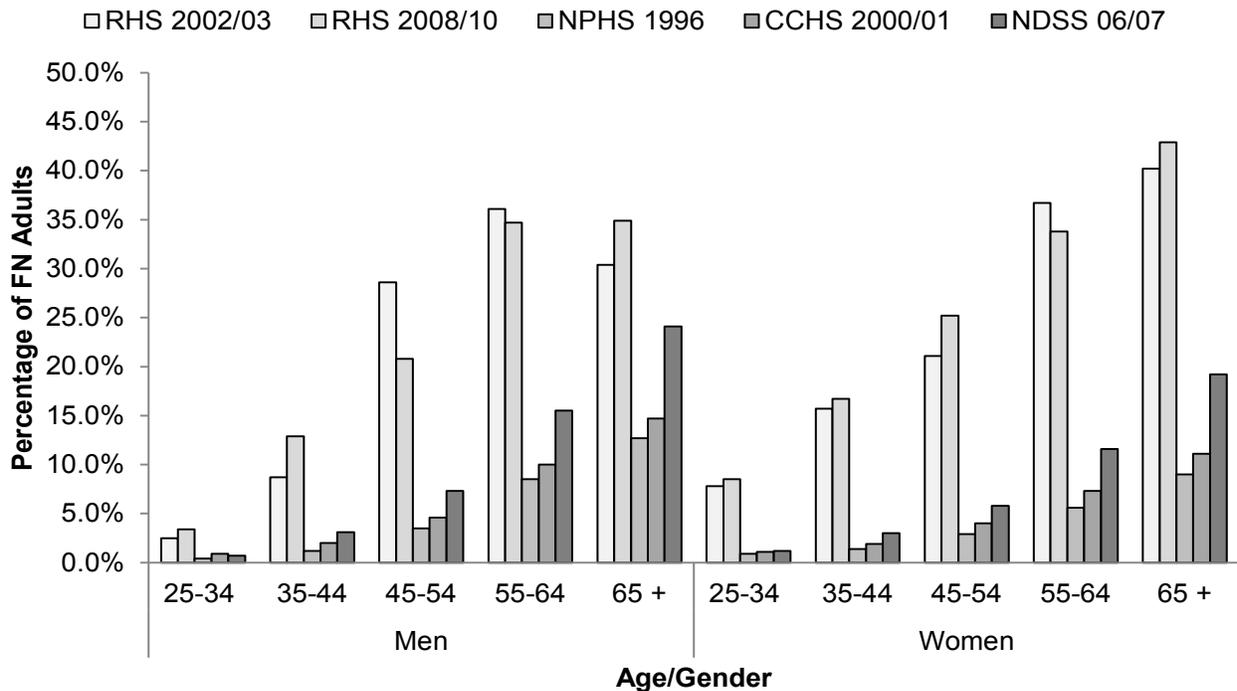


Figure 11.2. Percentage of First Nations Adults and the General Canadian Population with Diabetes, by Age Group



Treatment of diabetes. Overall, 89.7% (95% CI: 87.8, 91.4) of those with diabetes reported that they are currently undergoing treatment(s) or taking medication(s) for the condition. Among those with diabetes, diet (64.6%) and pills (72.9%, 95% CIs [± 3.2] and [± 3.0], respectively) were the most frequently reported therapies. Figure 11.3 compares the frequency of different treatments for diabetes reported in RHS 2002/03 and RHS 2008/10. The percentage engaging in exercise decreased from 52.9% in RHS 2002/03 to 48.3% (95% CI [± 3.7]) in RHS 2008/10, while those taking insulin increased from

16.7% in RHS 2002/03 to 22.9% (95% CI [± 3.3]) in RHS 2008/10. Traditional medicines were used by 11.7% (95% CI [± 2.1]) of those with diabetes in RHS 2008/10, similar to the percentage in RHS 2002/03 (12.9%).

Checking blood sugar. Half (50.8%) of all First Nations adults with diabetes reported checking their blood sugar levels at least once a day, with one in five having not checked at all in the past two weeks (19.6%, 95% CI [± 2.7]).

Impact of diabetes. Those with diabetes reported that their diabetes had affected their vision, for example

retinopathy (36.0%); their kidney function (18.0%); the feelings in their hands and feet, such as neuropathy (33.5%); their circulation (29.2%); or their lower limbs (23.0%); or had resulted in infections (14.5%) or amputation (2.4%E), 95% CIs [± 3.5], [± 3.2], [± 3.5], [± 3.9], [± 3.0], [± 3.0], and [± 1.2], respectively.

Diabetes education. An increase was observed in the prevalence of those with diabetes who are currently attending a diabetes clinic or seeing someone (MD, nurse, etc.) for diabetes education between RHS 2002/03 (49.4%, 95% CI [± 5.0]) and RHS 2008/10 (53.6%, 95% CI [± 3.7]). Of those with diabetes, who were not attending a clinic at the time of the survey, the majority indicated that they already had all the information they needed.

Diabetes and other health conditions (see Figure 11.4). First Nations adults aged 55 and over with type 2 diabetes also reported a higher prevalence of co-morbidity across a range of health conditions than did those without diabetes. A number of these health conditions occurred at more than twice the proportion observed in those without diabetes (see Figure 11.4). These included glaucoma (3.3%E vs. 7.7%, 95% CIs [± 1.4] and [± 1.9]),

liver disease excluding hepatitis (1.9%E vs. 4.6%E, 95% CIs [± 0.8] and [± 2.4]), stroke (4.8%E vs. 10.4%, 95% CIs [± 2.1] and [± 2.8]), and heart disease (14.5% vs. 29.1%, 95% CIs [± 2.3] and [± 4.0]). Additionally, high blood pressure, a component of metabolic syndrome, was also more common among those with type 2 diabetes (66.0% vs. 38.4%, 95% CIs [± 3.6] and [± 3.2]).

Covariates of Diabetes:

Diabetes and body mass index. A higher proportion of adults with higher body mass index had been diagnosed with diabetes: underweight (4.5% have diabetes), normal weight (6.9% have diabetes), overweight (13.3% have diabetes), obese (22.8% have diabetes), and morbidly obese (34.1% have diabetes).

Diabetes and nutritional diet. A higher proportion of First Nations adults with type 2 diabetes reported almost always eating a nutritious balanced diet (36.0%) more often than did those without diabetes (30.1%, 95% CIs [± 3.7] and [± 1.6], respectively)

Figure 11.3. Reported Treatments for First Nations Adults with Diabetes in RHS 2002/03 and RHS 2008/10

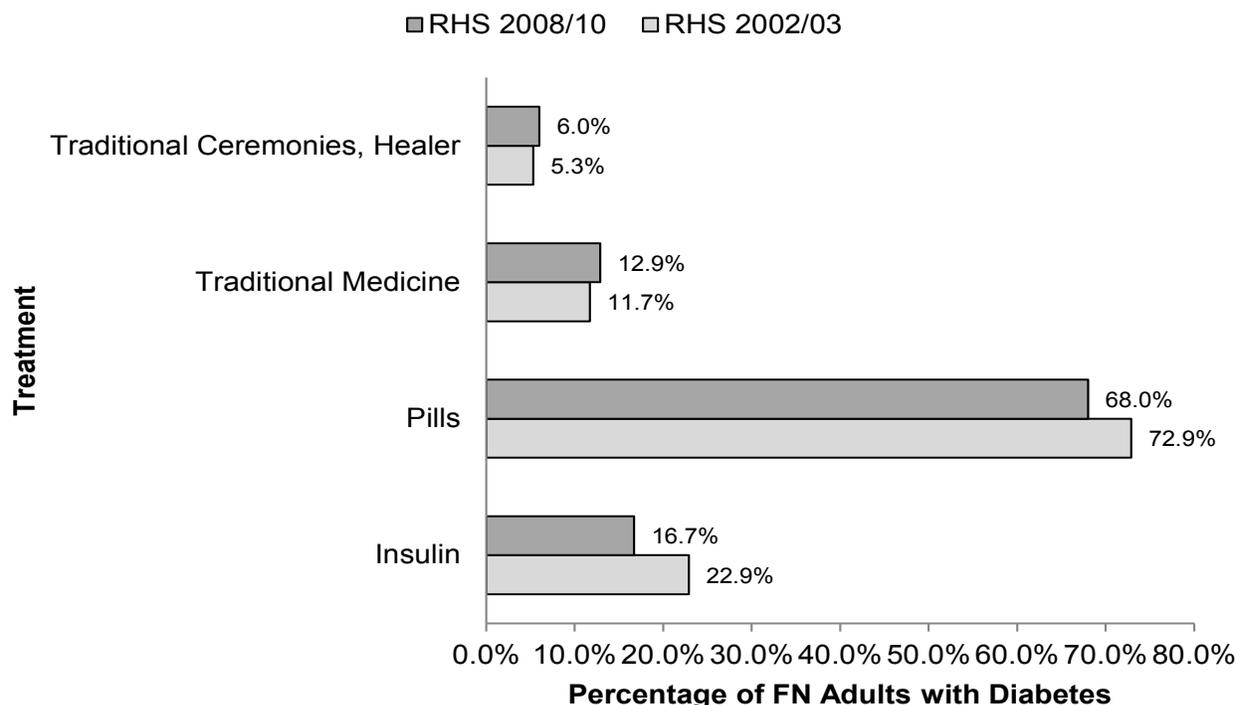
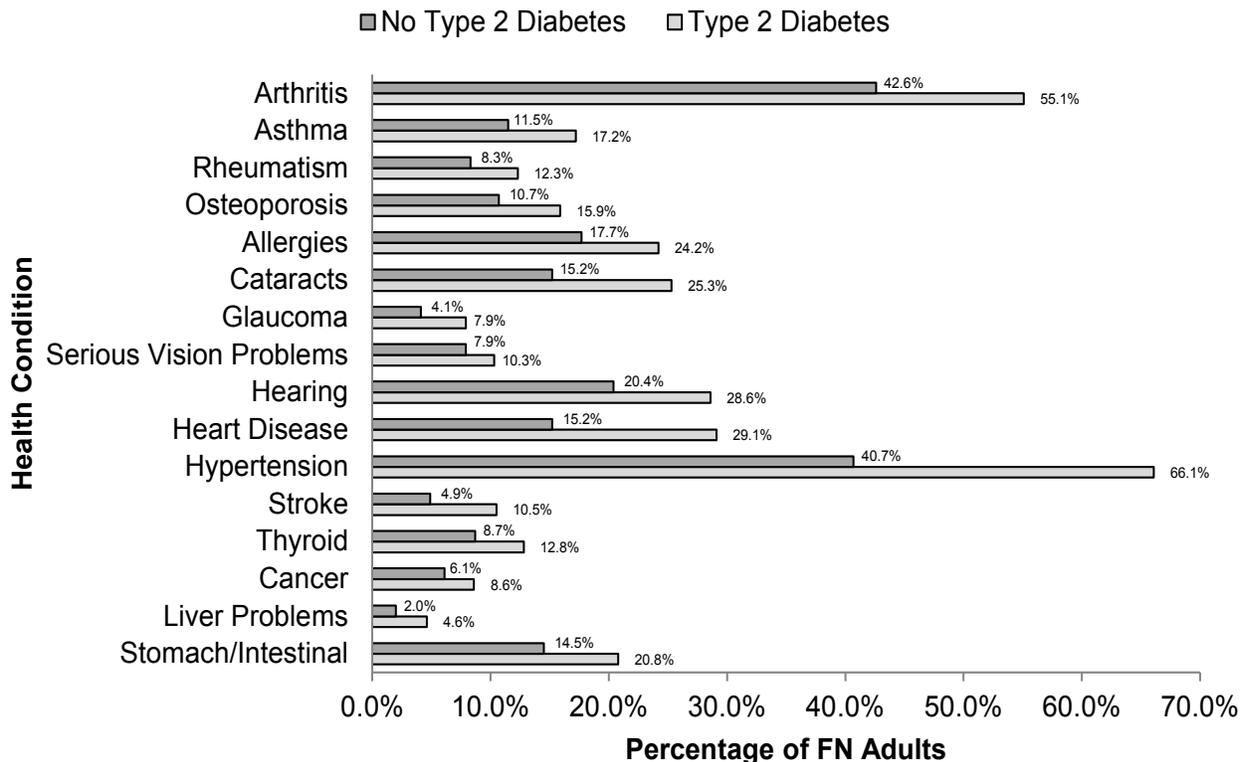


Figure 11.4. Percentage of First Nations Adults Aged 55+ with Type 2 Diabetes, by Health Condition



Diabetes and types of physical activities. A lower proportion of First Nations adults with type 2 diabetes reported participating in walking (76.5% vs. 83.4%) and hunting or trapping (16.3% vs. 23.3%) compared to those without diabetes, (95% CIs [± 3.2], [± 1.3], [± 2.9], and [± 1.4 %], respectively).

Diabetes and sedentary behaviour. higher proportion of adults with type 2 diabetes were sedentary, with 18.9% (95% CI [± 3.5]) reporting that they spent most of a typical day sitting, while only 12.8% (95% CI [± 1.1]) of those without diabetes reported this behaviour.

DISCUSSION

The prevalence of diabetes among First Nations adults aged 25 years and over remains significantly higher than that in the Canadian adult population (20.7% vs. 6.2%). This discrepancy between First Nations and the general population is consistent with findings from the previous RHS 2002/03. In the current phase of the survey, the epidemic appears to be slowing, as the age-adjusted rate of self-reported diabetes among First Nations adults increased by only 3% over the five-year period. The epidemic may be reaching a saturation

point within the First Nations population; the small increase in prevalence is commensurate with this effect.

Data from RHS 2002/03 reflect some interesting differences when compared to data from the NDSS, which examined diabetes trends in the general Canadian population and in the British Columbian First Nations population. The NDSS report found that the age-adjusted prevalence of diabetes among the British Columbian First Nations population increased by a smaller margin than that within the general Canadian population (15.5% vs. 21.0%). The NDSS also demonstrated a lower age-adjusted prevalence of diabetes among British Columbian First Nations (6.7%) than among First Nations overall in RHS 2008/10 (20.7%). However, the increase in prevalence among British Columbian First Nations over four years was still significantly higher than the increase seen in the period between RHS 2002/03 and RHS 2008/10 (3.0%). Methodological differences between the RHS and the NDSS, however, perhaps complicate the comparison of findings from the two surveys. The NDSS utilized whole-population medical record databases, while the RHS was based on self-reported data from the survey participants. Unfortunately, the RHS did

not stratify data by province, nor did the NDSS report a figure for First Nations at the national level. Without this data it is not possible to determine whether there was an actual discordance between the two surveys, or whether the apparent differences were the artifacts of methodological- or population-related differences.

If the national prevalence of diabetes among First Nations adults has stabilized, as suggested by RHS 2008/10, it is important to understand the factors that may be responsible. A number of influences could have led to this. Perhaps it was due to increased mortality, if the disease in question were driving mortality rates upward faster than disease incidence. A decreasing incidence rate would also result in a slowing of prevalence. Therefore, in order to better understand the seemingly stabilized prevalence of diabetes among First Nations adults, further study on trends of mortality and incidence of diabetes between 2002 to 2008 are needed.

Evidence of a decline in the incidence of diabetes in a First Nations community where an intensive diabetes intervention has been applied can be found in the Kahnawake First Nation in Quebec. Over a 15-year period, from 1986 to 2001, during which time an intensive diabetes education and prevention initiative was under way, the overall incidence of diabetes fell from 8.7% to 5.9% while the prevalence rose from 6.2% to 7.7%, standardized to the 2000–01 Canadian population (Horn et al., 2007). More awareness and screening would be expected to initially increase rates of diagnosis, since type 2 diabetes is characteristically under-diagnosed. Perhaps this was the case, as the incidence dropped from 8.7% in the first three-year period to 4.3% six years later, finally rising to 5.9% over the following nine years. If an increased rate of diagnosis was the result of an awareness intervention in the initial period, a 60% increase in incidence from midway in the program (1992–04 to 2001–03) suggests that the real incidence may have continued to rise. A change in the diagnostic criteria in 1998 may have also contributed to this apparent increase. The prevalence rose steadily, albeit more slowly, throughout the duration of the program, increasing by 24% from 1986–88 to 2001–03 (Horn et al., 2007). Given these findings, where a sustained, intensive application of resources did not demonstrably reduce the incidence or prevalence of diabetes, it is unlikely that a less intensive and more diffuse program like the ADI would lead to a reduction in the prevalence of type 2 diabetes in First Nations populations at the national level.

The increased proportion of First Nations adults with diabetes accessing treatment and attending diabetic

clinics suggests that education and awareness programs, and a focus on prevention and treatment in the ADI, may be leading to better management of the disease. An improvement in screening would be expected to yield higher incidence and prevalence rates, but this does not appear to have happened in the time period between RHS 2002/03 and RHS 2008/10, which suggests that perhaps more resources should be directed to screening programs. The higher percentage of First Nations adults with diabetes who reported using pills and insulin suggests that medical management of the disease has improved. It is, however, disappointing to note that a smaller percentage of those with diabetes are employing lifestyle changes to manage their condition. Since an intensive diet and exercise program can reduce the need for medications while simultaneously improving complications related to diabetes, this finding suggests that more effort may need to be directed at encouraging the use of non-pharmaceutical therapies.

The prevalence of complication and co-morbidity are a sober testament to the burden that diabetes represents for individuals, communities, and health care providers. The cost of diabetes, especially when complications arise, can be enormous. A recent study in Ontario found that the average cost for each new diabetic patient was \$5,104 per year, compared to \$2,174 per year for the average person without diabetes (Goeree et al., 2009). Since many First Nations adults live in remote or isolated communities, access to treatment results in high patient transportation expenditures and a significant disruption to family and community life for those with diabetes.

Access to affordable nutritious food is an important aspect of both the prevention and the management of diabetes. Therefore, the overall high number of First Nations adults who struggle to maintain food security is worrisome (see Chapter 7: Nutrition and Food Security). The use of traditional foods is lower among those with diabetes, as is participation in traditional activities such as hunting and trapping. If a traditional diet and lifestyle were associated with a reduction in the prevalence of diabetes, participation in these activities might be expected to be higher among those without diabetes. On the other hand, the debilitating aspects of diabetes along with its complications and co-morbidities would be expected to diminish the ability of those with diabetes to engage in these activities. Similarly, that a higher percentage of First Nations adults with diabetes engage in sedentary behaviour could also be a result of their debilitating condition rather than a causal factor in the disease process. A study among Australian Aborigines demonstrated that a return to a traditional lifestyle by a

group of diabetic men greatly improved their condition (O'Dea, 1984). A similar study among James Bay Cree found little benefit from a return to the land, although the Cree subjects brought store-bought food supplies with them (Robinson, Gebre, & Pickering, 1995). Comparing the results of these two studies lends support to the idea that a return to a traditional diet could be a more important factor than exercise in improving the management of diabetes among First Nations adults.

While three-quarters of those with diabetes reported that they were attending a diabetic clinic, seeing someone such as a doctor or nurse, or felt they already had enough knowledge, there was no difference in the reported consumption of fruits and vegetables between those who had diabetes and those who did not. This may suggest that education on the nutritional component of diabetic management has had a limited impact. Contrary to this, the fact that more First Nations adults with diabetes reported always eating a healthy and nutritious diet may be an indication of a better understanding of what constitutes good nutrition as a result of their exposure to diabetes education.

Replacing a diet of traditional food that is low in starch and sugar with one where refined starch and sugar are now significant components may be a major factor in the prevalence of diabetes among First Nations adults. However, the relatively small percentage of First Nations adults who reported eating large amounts of traditional foods and who engaged in traditional lifestyle activities and still have diabetes suggests that the effects of non-traditional behaviours outweigh the benefits of traditional behaviours. While it would be unrealistic to expect all First Nations adults to return fully to a traditional diet and lifestyle, an approach that is based on the principles of a traditional diet, with a focus on removing the most harmful foods, especially sugars and highly refined carbohydrates, may be acceptable to many. Although efforts have been made to improve conventional nutritional advice for First Nations communities by including traditional foods, the consensus approach to nutrition for people with diabetes is that the diet should be high in carbohydrates. The growing body of literature on the effectiveness of carbohydrate-restricted diets in assisting with weight loss and improved diabetes management, and the similarity of this kind of diet to the traditional diets of many First Nations, suggests that this approach may be a reasonable option for First Nations adults who wish to try it. Beyond this, there is a clear need for more educational efforts directed at reducing the consumption of caloric beverages and sugar in the First Nations population at large. An overall reduction in fructose consumption would be

a logical target for a renewed nutritional approach to the prevention of diabetes and its complications.

Considering that the ADI has instituted a program with resources targeting education, prevention, screening, and treatment, the modest improvements in outcomes noted in the period between RHS 2002/03 and RHS 2008/10 here are somewhat disappointing. If the epidemic has indeed leveled off, this may be evidence of the positive effects of the ADI. While this would be a welcome development, more research is needed before this conclusion can be made. Improvements in treatment may be the result of raised awareness and a better understanding of the importance of diabetes in the First Nations population. Overall, the continuing severity of the diabetes epidemic and its resistance to the prevention efforts so far directed towards it suggest not only that more resources are required but also that past approaches should be re-evaluated.

CONCLUSIONS

The diabetes epidemic in the First Nations population has for some time now been a public health emergency. A renewed effort to curtail this epidemic is clearly needed. Given the modest gains that have been achieved so far despite the enormous resources applied, the path forward must allow for a broadening of the scope of activities to include novel approaches that may yield better results than what has been achieved to date. Applied research to test new approaches must be supported. The nature of the crisis is such that bold action is required.

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Chapter 12

Health Status and Quality of Life

EXECUTIVE SUMMARY

Based on analysis of the First Nations Regional Health Survey (RHS) 2008/10, this two-part chapter addresses the following objectives:

- to examine self-reported health among First Nations adults living on-reserve and in northern communities using the concepts of thriving (e.g., “excellent,” “very good”) and non-thriving (e.g., “good,” “fair,” “poor”), and
- to examine how Health Utility Index (HUI) scores, a measure of health-related quality of life, vary across First Nations adults.

With regard to self-reported health, 44.1% of First Nations adults reported their health as thriving, compared to 60% of the general Canadian population. More First Nations men than women reported thriving health (46.4% vs. 41.7%). There was a clear inverse association between reporting thriving health and increased age among First Nations adults; that is, the proportion of thriving adults decreased with increasing age. A higher proportion of First Nations adults who currently work for pay/wages or who have a higher level of income reported thriving , compared to those who are not currently working for pay and those in lower income brackets. First Nations adults who reported their health as thriving had significantly higher HUI scores than those who reported their health as non-thriving. Overall 63% of First Nations adults had HUI scores of more than 0.80, compared with 81.6% of the general Canadian population. Fewer First Nations women than First Nations men had HUI scores of 1.00 (13.6% vs. 22.3%). A lower proportion of adults with type 2 diabetes had HUI scores of .90 to 1.00, compared to adults without type 2 diabetes (30.6% vs. 50.4%). At least 70% of First Nations adults who reported mental, physical, spiritual, and emotional balance in their lives “all of the time” had HUI scores of more than 0.80.

KEY FINDINGS

- 44.1% of First Nations adults reported their health as thriving (e.g., “excellent” or “very good”) compared to 60% of the general Canadian population.
- More First Nations men than First Nations women reported thriving health (46.4% vs. 41.7%).
- The top three determinants of health of First Nations adults were good diet (71.7%), good sleep (70%), and happiness (63.5%).
- 29.7% of First Nations adults reported their health to be “much better now than one year ago” or “somewhat better now.”
- There was a clear inverse association between reporting thriving health and increased age among First Nations adults (56.6% for those aged 18 to 29 years, decreasing to 19.5% for those aged 60 or older).
- A higher proportion of First Nations adults who currently work for pay/wages or who have a higher level of income reported thriving , compared to those who are not currently working for pay and those in lower income brackets.
- A Health Utility Index (HUI) score of 0.80 or higher is thought to indicate “good to full functional health”. Sixty-three percent of First Nations adults aged 18 or older had an HUI score of 0.80 or more, compared to 81.6% of the general Canadian population aged 12 or older.
- Fewer First Nations women than First Nations men had an HUI score of 1.00 (13.6% vs. 22.3%).
- A higher proportion of First Nations adults who reported their health as thriving had HUI scores of 0.80 or more than those who reported their health as non-thriving.
- 21% of First Nations adults diagnosed with type 2 diabetes had HUI scores of less 0.50, compared to 10% of those without type 2 diabetes.
- Approximately 70% of First Nations adults who reported having a consistent sense of mental, physical, spiritual, and emotional balance in their lives had HUI scores of 0.80 or higher.

PART I: SELF-REPORTED HEALTH

INTRODUCTION

Background

In Part I of this chapter, we describe the trends of self-reported health among First Nations adults in RHS 2008/10. Self-reported health is a measure whereby participants rate their health status as “excellent,” “very good,” “good,” “fair,” or “poor.” Although self-reported health is not a direct measure of health status, self-assessed health is a well-established proxy (Idler, Kasl, & Lemke, 1990; Kaplan & Camacho, 1983) and is highly correlated with mortality, morbidity, and health care utilization (Miilunpalo, Vuori, Ola, Pasanen, & Urponen, 1997).

Thriving health

As a means of examining how self-reported health varies in relation to various known determinants of health, we used the concept of thriving health. The concept of thriving, as used in resiliency literature, refers to one’s ability to flourish in response to adversity (Rutter, 1985). In the context of health and well-being, a human resiliency framework is useful for identifying characteristics that may be associated with positive health outcomes among those who experience increased risk (Carver, 1998). As O’Leary and Ickovics (1995) have stated, knowledge of the factors that promote thriving can provide an impetus for a paradigm shift away from illness-based research towards an approach that understands, explains, and nurtures health. Such an approach represents a critical turn for indigenous health researchers (Richmond, Ross, & Egeland, 2007).

We have practically applied the concept of thriving to our self-reported health analyses by measuring thriving health as “excellent” or “very good” and non-thriving health as “good,” “fair,” or “poor.” Following the analyses of other works with indigenous populations (Richmond et al., 2007) and non-indigenous populations (Ross, 2002), we argue that this categorization of self-reported health status enables a more positive and asset-based approach to understanding patterns of health.

This analysis is also guided by other research on determinants of health within indigenous populations from Canada and elsewhere (for example: Newbold, 1998; Richmond et al., 2007; Sibthorpe, Anderson, & Cunningham, 2001; Wilson & Rosenberg, 2002). In exploring self-reported health, a broad range of determinants of health is drawn on, including, for example, gender, age, income, and employment, as conceptualized by the RHS Cultural Framework (Dumont, 2005).

METHODS

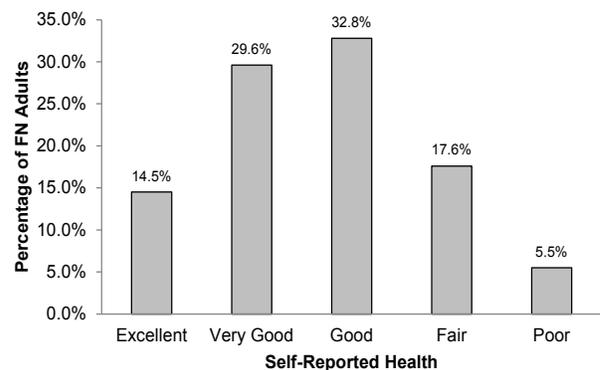
As a means of presenting self-reported health as it was captured in RHS 2008/10, we have made comparisons with data regarding the general Canadian population from the Canadian Community Health Survey (CCHS) and with other existing Aboriginal health data from the Aboriginal Peoples Survey. These comparisons are indicated in the text where appropriate.

RESULTS

The distribution of self-reported health

Figure 12.1 displays the distribution categories of self-reported health in the First Nations adult population living in First Nations communities. The pattern indicates that a higher proportion of First Nations adults were non-thriving than were thriving. In comparison, data from the CCHS (Statistics Canada, 2011) show the reverse trend in the general Canadian population: nearly 60% of the general Canadian population self-reported their health as thriving.

Figure 12.1. Self-reported Health among First Nations Adults, RHS 2008/10



Self-reported health and gender

In general, a higher proportion of First Nations men than women reported their health as thriving (46.4% vs. 41.8%), as demonstrated in Figure 12.2. This pattern is similar to that observed in the 2001 Aboriginal People’s Survey: 60% of males reported thriving compared to 56% of women (Richmond et al., 2007).

In the general Canadian population, the proportion of adults who were thriving was higher than that of First Nations and no gender differences were observed (see Figure 12.3). This discrepancy is similar to that identified by Newbold (1998) in his analyses of the 1991 Aboriginal People’s Survey and 1991 General Social Survey.

Figure 12.2. Self-reported Health, by Gender, among First Nations Adults, RHS 2008/10

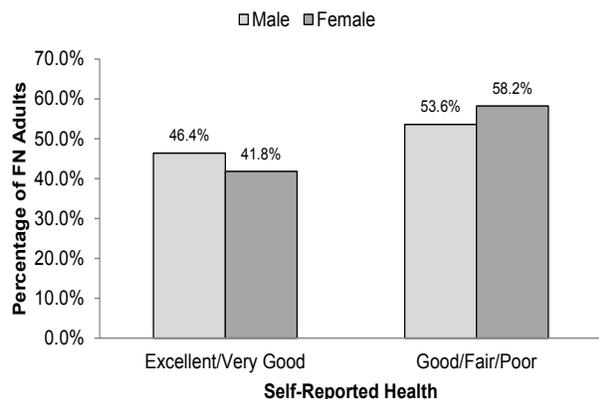
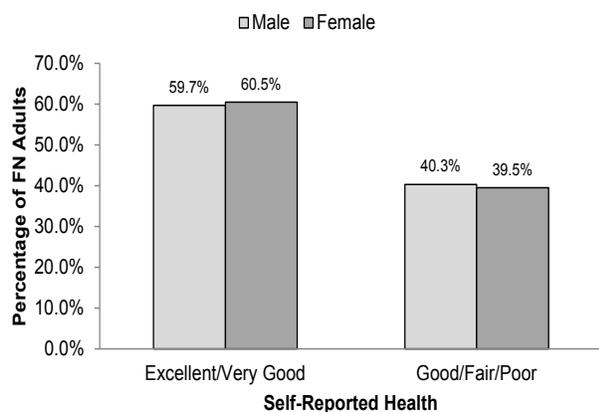
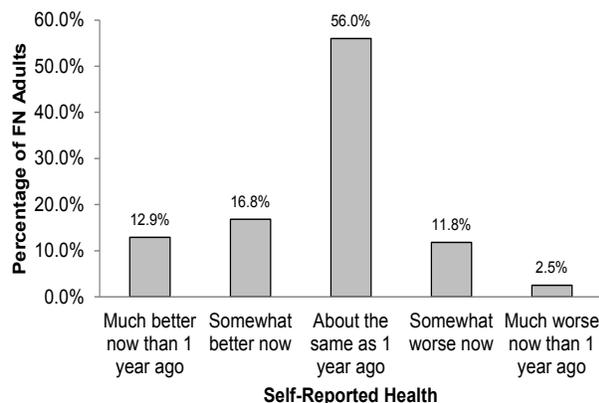


Figure 12.3. Self-reported Health, by Gender, among the General Canadian Population, CCHS 2010



On a more positive note, approximately one-third (29.7%) of First Nations adults reported that their health was ‘somewhat’ to ‘much’ better now compared to one year ago (see Figure 12.4).

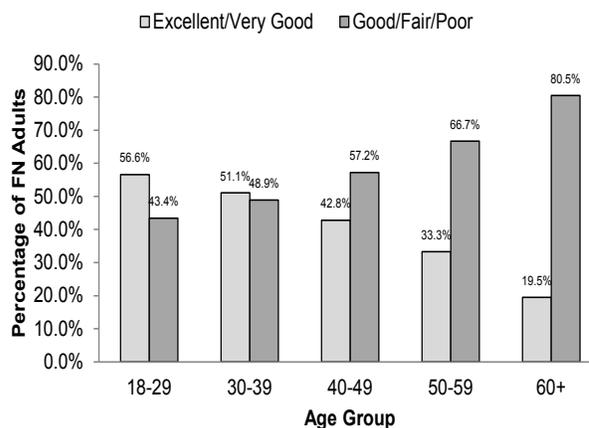
Figure 12.4. Current Self-reported Health in Comparison to One Year Ago among First Nations Adults



Self-reported health and age

There was a clear inverse association between self-reported health and age (see Figure 12.5). A much higher proportion of younger First Nations adults reported their health as thriving than did older First Nations adults (56.6% for those aged 18 to 29 years reported thriving, decreasing to 19.4% for those aged 60 and above).

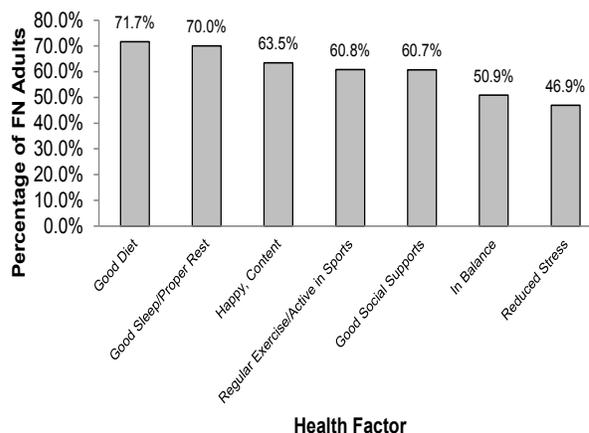
Figure 12.5. Self-reported Health, by Age, among First Nations Adults



Things that make people healthy

First Nations adults who reported ‘good’, ‘very good’ or ‘excellent’ general health were asked to choose, from a predetermined list, the factors that made them healthy. As shown in Figure 12.6, the leading reported determinants of health among healthy people were good diet, including low fat foods, fruits, and vegetables (71.7%) and good sleep/proper rest (70.0%).

Figure 12.6. Things that Make People Healthy (among adults with good to excellent general health) (n = 4448)



Self-reported health, employment status, and income

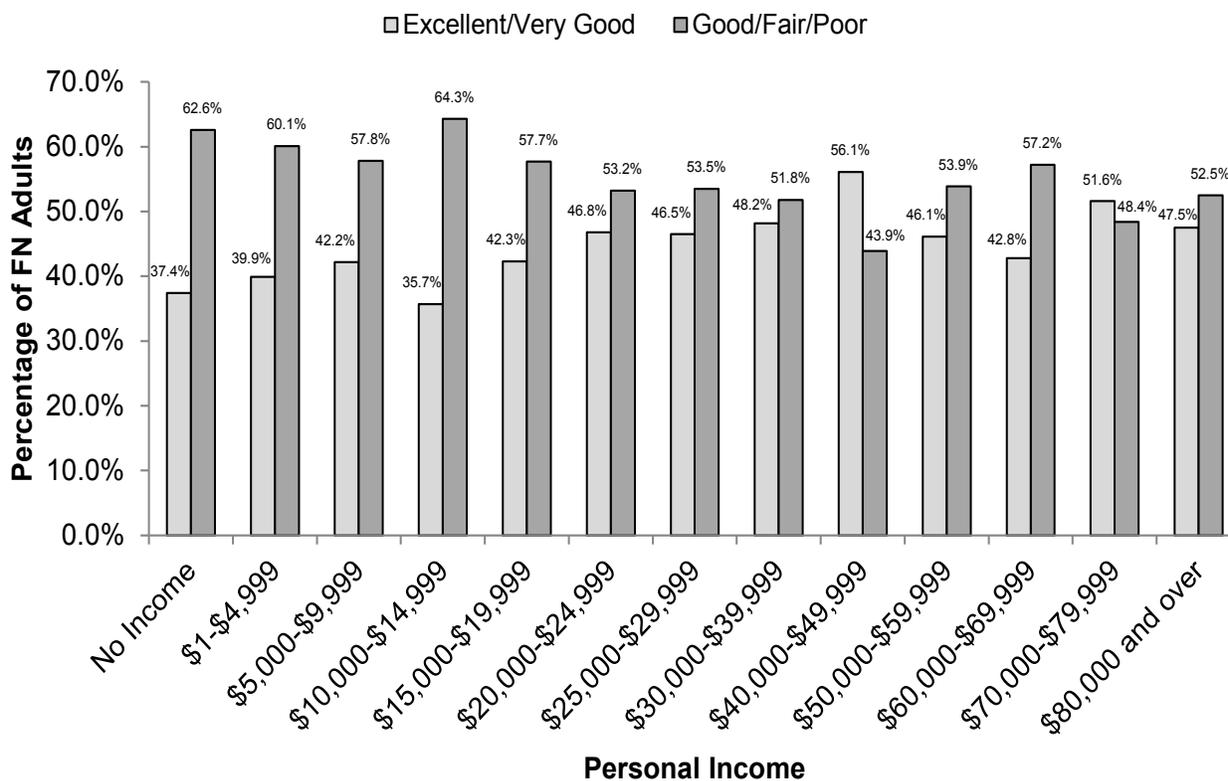
As has been observed in the general Canadian population and in analyses of other Aboriginal health data sets, there is a distinct social gradient in self-reported health status. In RHS 2008/10, a higher proportion of First Nations adults who were employed reported their health as thriving when compared to those who were not currently working for pay (see Figure 12.7). Regarding the association between self-reported health and personal income, income was positively associated with thriving health. The largest difference in health status was seen in the lowest personal income category (no income to \$19,999), where approximately 40% of First Nations adults reported their health as thriving and 60% reported their health as non-thriving. The pattern began to change at the \$30,000 to \$39,999 income bracket, where approximately equal proportions of First Nations adults reported their health as thriving and non-thriving. At \$40,000 to \$49,999, a considerably higher proportion of First Nations adults reported their health as thriving (56.1%) rather than non-thriving (43.9%). Above

\$50,000, the trend no longer presented itself (see Figure 12.8). Looking at this a slightly different way, it appears that a lower proportion of adults with personal incomes of less than \$20,000/year report thriving, compared to those with incomes above \$20,000/year (39.5% vs. 48.3%). Unfortunately the majority of First Nations adults report annual incomes of less than \$20,000/year.

Figure 12.7. Self-reported Health, by Employment among First Nations Adults



Figure 12.8. Self-reported Health, by Personal Income, among First Nations Adults



PART II: HEALTH UTILITY INDEX (HUI)

INTRODUCTION

Background

The HUI is a means of describing health status and obtaining health utility scores reflecting health-related quality of life (HRQL). HRQL, as defined by Patrick & Erickson (1993, p. 22) “is the value assigned to duration of life as modified by the impairments, functional states, perceptions, and social opportunities that are influenced by disease, injury, treatment, or policy.”

The HUI was developed by the Health Utilities Group at McMaster University; it is a generic, comprehensive, and well-supported tool for aggregating the effects caused by morbidity and mortality (Feeny et al., 2002; Furlong, Feeny, Torrance, & Barr, 2001). Over the years, the Health Utilities Group has developed and refined the HUI to include the Health Utilities Index Mark 1 (HUI1), Mark 2 (HUI2), and Mark 3 (HUI3) systems. Each HUI measure includes a health status classification system and a preference-based scoring formula. Although HUI1 is still used, the Health Utilities Group (2003) states that HUI2 and HUI3 are much more frequently used in both clinical and population health studies. To date, the HUI has not been used with First Nations living in First Nations communities, and little has been written on this important issue.

Part II of this chapter is based on measurements taken using the HUI3, which was included in RHS 2008/10. Survey participants were asked to think about their usual health and their ability to do things on a day-to-day basis, with a focus on their abilities and disabilities and how they usually feel. Specifically, the HUI3 was used to measure eight attributes contributing to the HRQL among First Nations adults. These eight attributes included vision, hearing, speech, ambulation (ability to get around), dexterity (use of hands and fingers), emotions (feelings), cognition (memory and thinking), and pain. Each attribute contains five or six levels, each measuring differences in ability across these attributes. For example, regarding vision, those who rated their vision as a 1 indicated that they are “able to see well enough without glasses or contact lenses,” while those who rated their vision as a 6 are “unable to see at all.” HUI scores range from -0.36 (worst health state) through 0.00 (dead) to 1.00 (full health) in increments of 0.001.¹

¹ Individuals who answer to the extreme in terms of impairment across all single attribute questions, which are then used to create the multi-attribute HUI score, may end up with a lower score than 0.00.

An overall score of 0.80 to 1.00 is considered to be “good to full” functional health; scores below 0.80 are considered to indicate “moderate to poor” functional health.

A large body of empirical evidence supports the HUI3 system as having strong reliability and validity (Feeny et al., 2002; Furlong et al., 2001) and demonstrates that it performs particularly well in capturing the HRQL and impact of disease in population surveys (Bowker, Pohar, & Johnson, 2006; Jones, Pohar, Warren, Turpin, & Warren, 2008; Maddigon, Feeny, & Johnson, 2005). Research using the HUI has found that participant scores corroborate with health burden and HRQL for individuals with chronic diseases (Mo, Choi, Li, & Merrick, 2004). As an example, Trakas, Oh, Singh, Risebrough, & Shear (2001) used the HUI3 to determine whether there was a clinically relevant difference in the health state utilities of obese and non-obese individuals, and they found significant differences across body mass index categories for each of the eight attributes of the HUI3. This information is useful for the development of strategies for the prevention and control of chronic diseases.

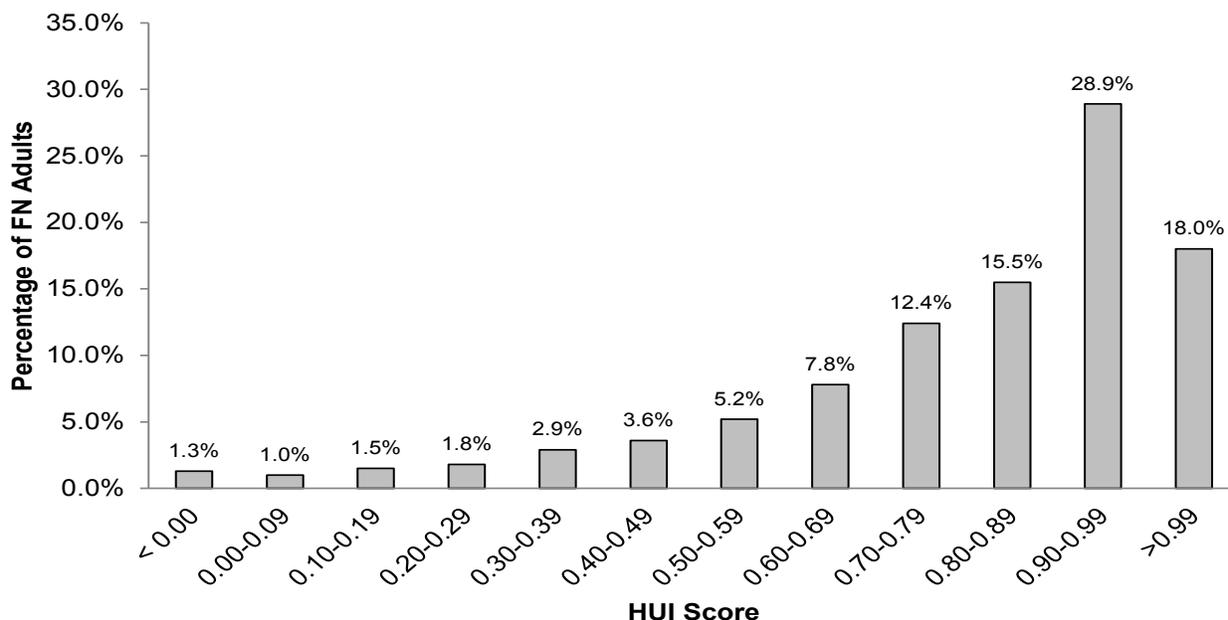
In this chapter, the associations between HUI score and gender, type of diabetes, and life balance are examined and discussed.

RESULTS

HUI scores for First Nations adults

Overall, 62.4% of First Nations adults aged 18 and older had HUI scores of 0.80 or more (i.e., “good to full” functional health) (see Figure 12.9). This compares with 81.6% of the general Canadian population aged 12 and older, as reported in the CCHS.

Figure 12.9. HUI Scores among First Nations Adults

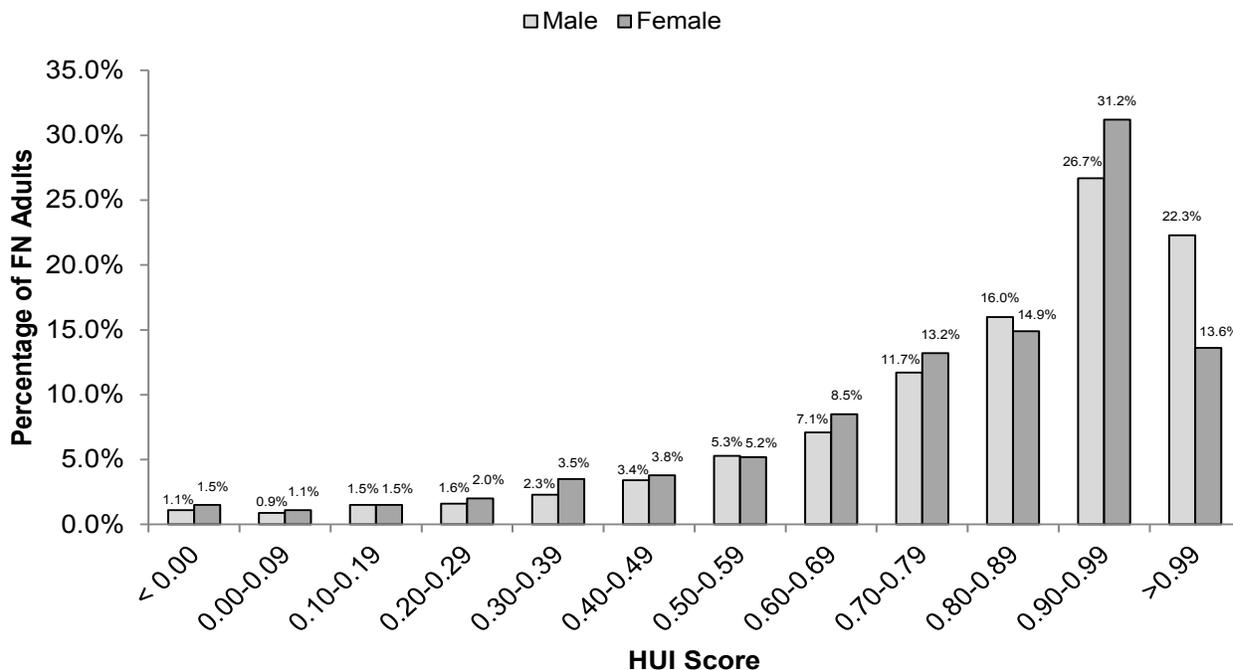


HUI scores by gender

A lower proportion of First Nations females, had an HUI score of 1.00 (13.6%), compared to males (22.3%). In contrast a higher proportion of First Nations females had an HUI score in the 0.90 to 0.99 range (31.2%) compared to males (26.7%).

This same pattern was observed within a study of Ontario residents; however overall percentages were higher: 35% of men and 30% of women had a score of 1.00 on the HUI (Roberge, Berthelot, & Wolfson, 1995). Compared to men and women in the general Ontario population, 22.3% fewer First Nations men and 13.6% fewer First Nations women reported having perfect health.

Figure 12.10. HUI Scores, by Gender, among First Nations Adults

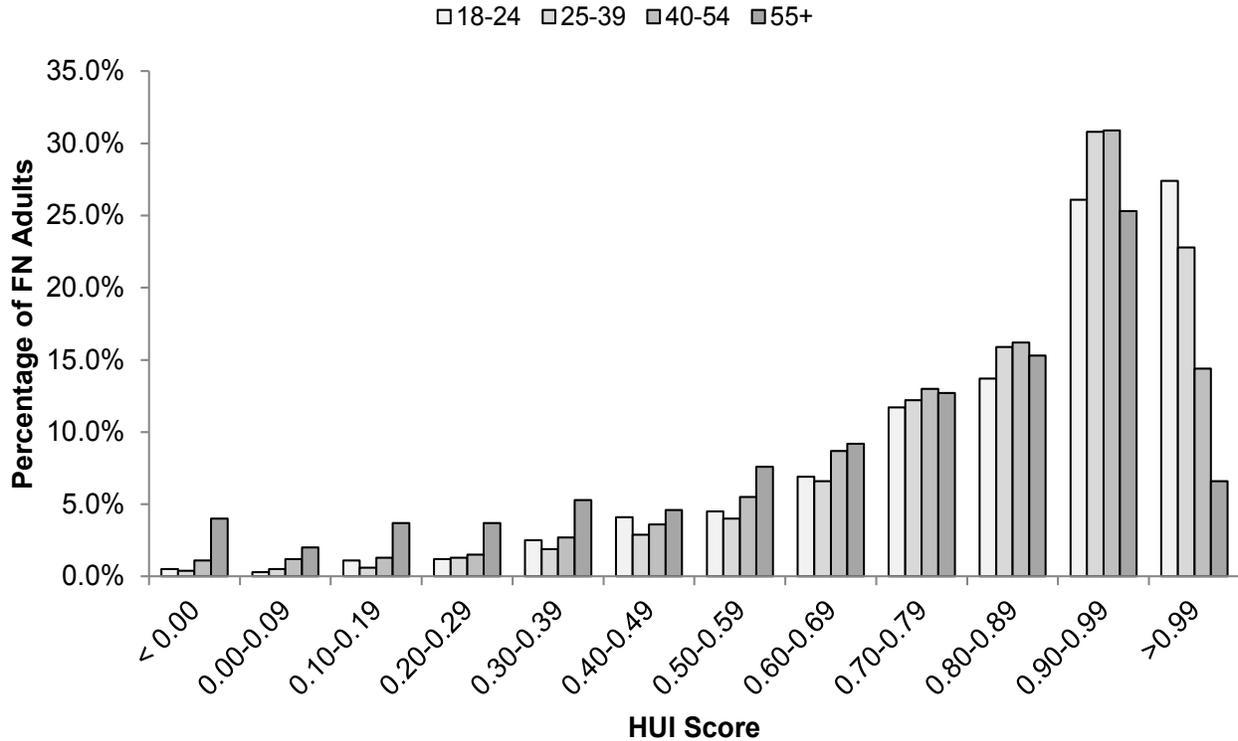


HUI scores by age

HUI scores among First Nations decreased steadily with age (see Figure 12.11). While 27.4% of those 18 to 24 had an HUI score of 1.00, only 6.6% of those 55 years

or older had a perfect score. The three youngest age groups had higher HUI scores (scores of 0.80 or up): 18 to 24 years (67%), 25 to 39 years (70%), and 40 to 54 years (62%); in contrast only 47% of First Nations adults aged 55 or older had an HUI of 0.80 and up.

Figure 12.11. HUI Scores, by Age, among First Nations Adults



HUI scores by self-reported health

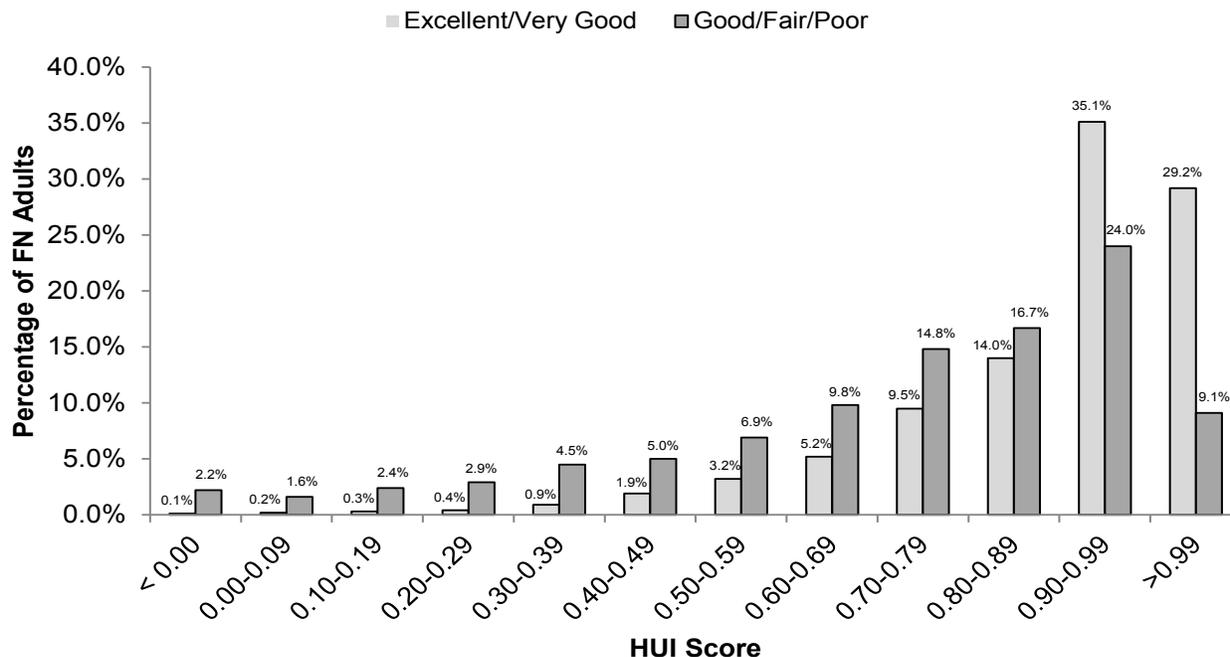
A closer look at how HUI scores varied within the First Nations population reveals that particular determinants of health demonstrated patterns of HUI scores (see Figure 12.12).

A significantly higher proportion of First Nations adults who reported their health as thriving had HUI scores

of 0.80 or higher (80%), compared with those who reported their health as non-thriving (fewer than 50%).

In the general Canadian population, 24% of the reported excellent health with a mean HUI score of 0.96 (Eng & Feeny, 2007). In comparison, 14.5% of First Nations adults reported their health as excellent with a mean HUI score of 0.91.

Figure 12.12. HUI Scores, by Self-reported Health, among First Nations Adults

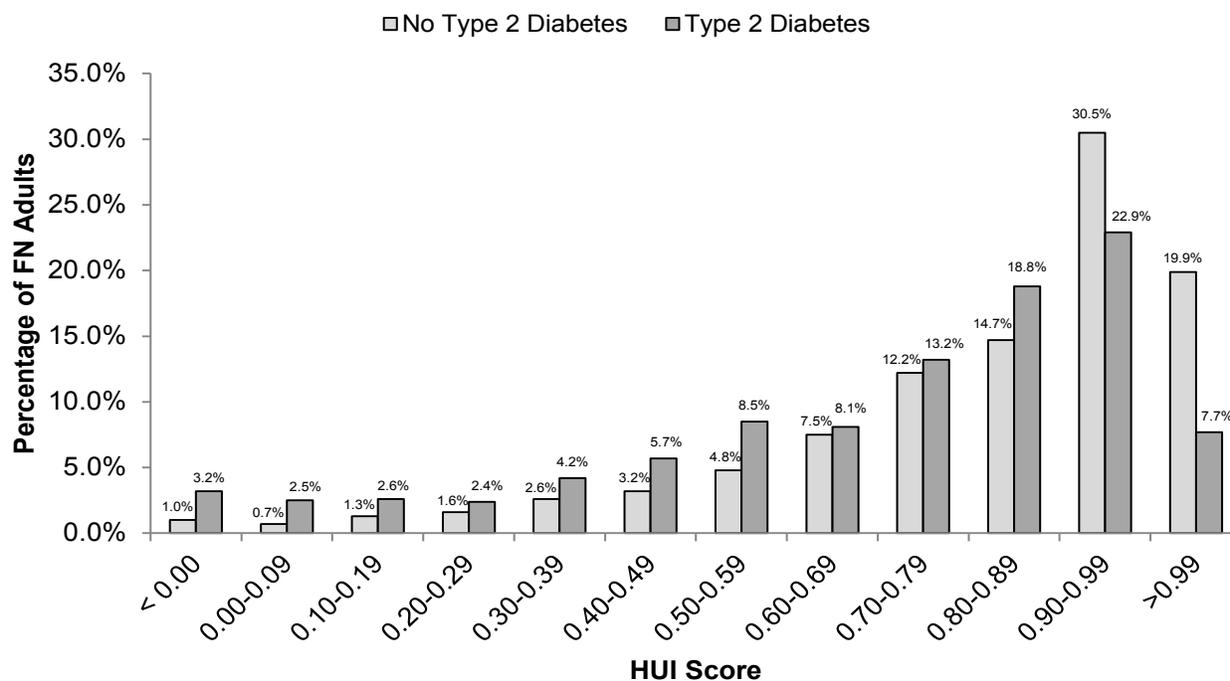


HUI scores among First Nations adults with type 2 diabetes

The prevalence of chronic diseases strongly shapes an HUI score. Here we explored how HUI scores among

First Nations adults were shaped by the existence of type 2 diabetes (see Figure 12.13). A significantly lower proportion of adults with Type 2 diabetes revealed HUI scores of 0.80, and up (i.e., good to full functioning health), compared to those without Type 2 diabetes.

Figure 12.13. HUI Scores, by Prevalence of Type 2 Diabetes, among all First Nations Adults

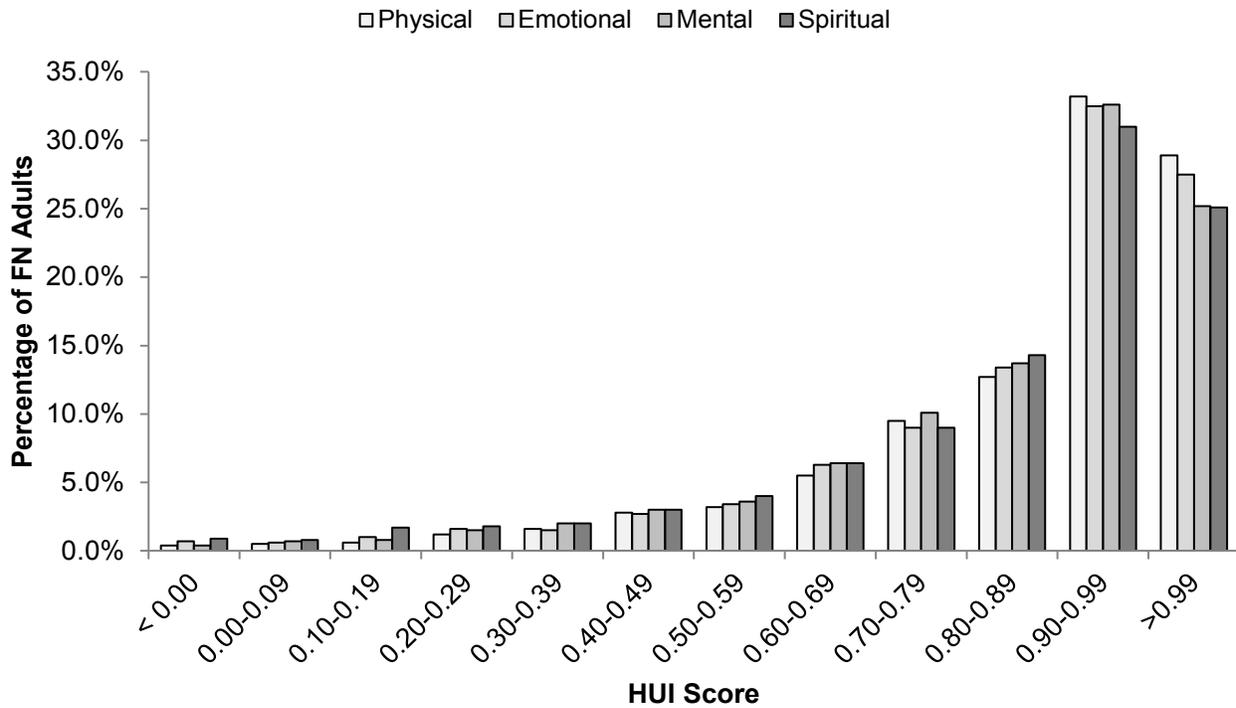


HUI scores by life balance

In keeping with the RHS Cultural Framework, the final association we explored was HUI score by sense of life balance (see Figure 12.14). Life balance is meant to capture the picture of holistic health and includes physical, mental, emotional, and spiritual balance. First Nations adults were asked to identify how balanced they were in life,

with options including “almost none of the time,” “some of the time,” “most of the time,” or “all of the time.” Not surprisingly, we saw a clear positive association between HUI score and a sense of life balance. The majority of First Nations adults who reported having a sense of balance in their lives “all of the time” had high HUI scores.

Figure 12.14. HUI Scores, by Life Balance (“all of the time”), among First Nations Adults



Approximately 75% of First Nations adults who reported having a sense of physical balance “all of the time” had an HUI score greater than 0.80. This compared with 73.4% of those reporting emotional balance, 72% of those reporting mental balance, and 70% of those reporting spiritual balance. Clearly, the holistic sense of balance in the lives of First Nations adults had a strong association with HRQL.

DISCUSSION

We compared self-reported health data from RHS 2008/10 with data from the general Canadian population from the CCHS and with other existing Aboriginal health data from the Aboriginal Peoples Survey.

Regarding self-reported health, on average, First Nations adults living on-reserve and in northern communities were less likely to report their health as thriving than were adults in the general Canadian population. The

emerging pattern may reflect the higher prevalence of the negative status of other determinants of health among First Nations, such as mental health and well-being, disability, and chronic and infectious diseases, which affect the First Nations population more than the general Canadian population. The differences in self-reported health between First Nations and the general Canadian population have been documented in other studies (Newbold, 1998; Richmond et al., 2007; Tjepkema, 2002; Wilson & Rosenberg, 2002). The decreased likelihood of First Nations’ reporting thriving health status compared to the non-indigenous population is a pattern that has been described in other nations as well (Pink & Allbon, 2008; Spurling& Hayman, 2010).

Not surprisingly, we saw significant differences in the likelihood of reporting thriving health across both gender and age. First Nations men were

more likely than First Nations women to report their health as thriving, and there was an inverse relationship between reporting thriving health and increased age. These findings are also seen globally.

We also saw considerably strong associations between reporting thriving health and measures of socio-economic status, in particular income and employment status. A wide body of evidence has substantiated the link between health and measures of socio-economic status with the Canadian Aboriginal population (Loppie Reading & Wien, 2009), within the general Canadian population (Raphael, 2001), and on a global scale (Wilkinson, 1997). Income is widely recognized as one of the most associated non-medical determinants of health, and the association between poverty and illness is clear: with few exceptions, those worst-off financially experience the highest rates of illness and premature death (Evans, Whitehead, Diderichsen, Bhuiya, & Wirth, 2001). There is a known social gradient in health, as it has been shown that health improves at each step up the income ladder (Marmot & Wilkinson, 1999). Clearly, the associations between poor health and low socio-economic status are strong in the First Nations population, and more research and policy development must be undertaken to reduce these causes of poor health, illness, and premature death.

Recall that an individual with an overall HUI score between 0.80 and 1.00 is considered to be in “good to full” functional health, while HUI scores below 0.80 are considered to indicate “moderate to poor” functional health. On average, greater proportions of the First Nations adult population had HUI scores of less than 0.80 than did adults in the general Canadian population. This is concerning, as it reveals that greater proportions of First Nations adults experience chronic illnesses and their associated complications, eventually leading to a reduction in functional health status. Type 2 diabetes is the most prevalent chronic disease to affect the First Nations adult population (Young, Reading, Elias, & O’Neil, 2000), and our results clearly indicate that those with type 2 diabetes also demonstrate disproportionately lower HUI scores. The lower overall HUI scores incurred by those with type 2 diabetes can be explained, at least in part, by the increase in complications and co-morbidities typically associated with this disease (Lloyd et al., 2008).

CONCLUSIONS

In future phases of the RHS, it would be useful to continue to measure self-reported health and to re-apply the Health Utilities Index. Incorporating these measures would permit better understanding of

how the health of the First Nations adult population changes over time, and it would also enable continued comparisons with the general Canadian population.

More complex statistical modeling using these health measures would provide a better idea of the relative role of various determinants of health, such as income, food security, and social support, in influencing both self-reported health and HUI scores. This is particularly promising for self-reported health, which others (Newbold, 1998; Richmond et al., 2007; Sibthorpe et al., 2001; Wilson & Rosenberg, 2002) have previously done with other Aboriginal health data. Given the unique scope and breadth of the RHS in comparison to other on-reserve datasets, the findings could be very different.

Additionally, a more thorough analysis of the HUI3 could offer many insights into HQRL and the functional health status of the First Nations population. As has been suggested by Feng, Bernier, Macintosh, and Orpana (2009) in their work on the HUI to assess disability scores in the general Canadian population, an alternative to using HUI3 global utility scores as continuous indices (i.e., by looking at scores out of 1.0) would be to group them into categories based on previously established systems for classifying various health utilities, such as vision and ambulation, according to the functional levels within each attribute. Using this type of approach would allow for a more accurate description of functional health status or disability, which would be clearer than values ranging from -0.36 to 1.00. Second, by compartmentalizing HUI scores into these categories, we would be able to build more concrete statistical models of the determinants of health, whereby various functional states could be identified.

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Chapter 13

Oral Health

EXECUTIVE SUMMARY

This chapter reports on indicators and levels of access to dental care, dentate status, and perceived treatment needs among adults aged 18 and over living on-reserve or in northern communities. In the First Nations Regional Health Survey (RHS) 2008/10, 56.5% of First Nations adults living in First Nations communities reported receiving dental care in the 12 months prior to the survey. No change in prevalence was observed in past year dental care since the previous RHS 2002/03 (59.2%); however prevalence among First Nation past year dental care was significantly lower than that observed within the general Canadian population [71.6% in the Oral Health Module of the 2007–09 Canadian Health Measures Survey (CHMS)]. Higher rates of dental care in the year prior to the survey were observed among females than males, those 18 to 49, high school graduates, and those currently working for pay. The proportion of First Nations adults obtaining dental care in the past year was lower among those with no natural teeth, those aged 50 and up, those who reported often having limitations to their daily activities, those who had fair or poor self-rated health, those who never participated in cultural events, and those who mostly used a First Nations language in daily life. The lowest rate of dental care obtained within the year prior to the survey was found among edentulous (no natural teeth) First Nations adults aged 60 or above (16.3%).

Barriers to dental care have remained largely the same since RHS 2002/03, with nearly one-quarter (24.1%) of First Nations adults reporting long waiting lists for dental care. Other principal barriers to accessing care included unavailability of services (18%) and lack of coverage under Health Canada's Non-Insured Health Benefits (NIHB) Program (17.4%).

Overall, 10.9% of First Nations adults are edentulous, as compared to 6.4% in the CHMS. The greatest disparity in the prevalence of edentulism between First Nations adults and other Canadians occurs in the oldest age group, where 41.8% of First Nations adults aged 60 or above are edentulous, compared to 21.7% of their counterparts in the general Canadian population. Replacing missing teeth (full or partial dentures, false teeth, bridges, and dental plates) is more common among females than males (30.6% vs. 25.4%). Among the dentate, tooth replacement it is more common among older age groups, which is consistent with having fewer teeth. Fewer edentulous First Nations aged 60 to 79 years have teeth replacements compared to edentulous Canadians (86.7% vs. 93.5%).

One in four (24.8%) First Nations adults had no self-reported dental treatment needs. Restorative and maintenance needs have increased since the 1997 RHS Pilot Survey and RHS 2002/03: 43.9% of First Nations adults in RHS 2008/10 needed restorative treatment, compared to 36.9% in RHS 2002/03 and 15.4% in the RHS Pilot Survey; and 61% required maintenance (e.g., checkups or teeth cleaning), compared to 48.4% in RHS 2002/03 and 8.5% in the RHS Pilot Survey in 1997. Analysis by age group indicated that 41.5% of adults aged 60 and above needed prosthodontic services; 8.3% of those aged 50 to 59 years needed periodontics; 7.2% of those aged 18 to 29 years required orthodontics; and 6.9% of those aged 40 to 49 years needed urgent care. A large proportion of edentulous First Nations need prosthodontic services—55.1% compared to 39.4% of edentulous people within the Canadian population.

Results revealed that First Nations adults have less access to dental care, a higher prevalence of edentulism and higher dental treatment needs, than the rest of the Canadian population. For First Nations people to achieve improved oral health and access to care, resources should be directed towards health promotion.

KEY FINDINGS

- 56.5% of First Nations adults reported having dental care in the 12 months prior to the survey, 63.1% of females and 50.0% of males. No change was observed since the previous RHS 2002/03 in past year dental care (59.2%); however past year dental care remains much lower than that of the general Canadian population (71.6% of adults aged 20 to 79 in CCHS 2007–09).
- The highest rates of dental care within the year prior to the survey were found among those who graduated from high school (65.9%), those who were currently working for pay (63.8%), and those who were 18 to 49 years of age (approximately 60%).
- The lowest rate of dental care obtained within the year prior to the survey was found among edentulous adults 60+ years (16.3%).
- Nearly one quarter (24.1%) of First Nations adults reported long waiting lists for dental care. Lack of coverage under Health Canada’s Non-Insured Health Benefits (NIHB) Program was also cited as a barrier (17.4%).
- A higher proportion of First Nations adults are more likely to have lost all their natural teeth compared to those in the general Canadian population (10.9% vs. 6.4%).
- Edentulism (complete tooth loss) is highest for First Nations aged 60 and over (41.8%).
- Denture wearing (fixed or removable) is more common among older First Nations adults, consistent with having fewer teeth.
- Fewer edentulous First Nations aged 60 to 79 years have teeth replacements (i.e., full or partial dentures, false teeth, bridges, and dental plates) compared to edentulous Canadians (86.7% vs. 93.5%).
- Overall, one in four First Nations adults had no self-reported dental treatment needs, but dental needs varied according to age and dentate status.
- For the most part, need for dental care is higher among younger First Nations adults, except for prosthodontic services.
- A larger proportion of edentulous First Nations need prosthodontic services compared to edentulous people in the Canadian population (55.1% vs. 39.4%).
- Restorative (i.e., fillings) and maintenance (i.e., checkups and cleanings) needs have increased since RHS 2002/03

INTRODUCTION

First Nations people in Canada must be able to access appropriate dental care services in order to maintain or improve their oral health and well-being. Most First Nations who receive dental care do so through Health Canada's Non-Insured Health Benefits (NIHB) Program, which provides Status Indians and recognized Inuit with a range of dental services that are not covered by other public or private health care plans. The total NIHB expenditures in 2008–09 were \$934.6 million, out of which dental costs represented the third largest proportion (18.9%) at \$176.4 million and had the highest rate of annual growth (6.5%) of all benefits (Non-insured Health Benefits Directorate, 2010). However, despite the large and increasing amount of resources expended on dental care, utilization remains lower among First Nations people than among the general Canadian population. In RHS 2002/03, most First Nations adults (59.2%) reported receiving some type of dental care within the year preceding the survey (First Nations Information Governance Committee [FNIGC], 2005). More First Nations women than men indicated they received dental care services (64.8% vs. 53.6%), and more younger adults than older adults (63.4% of those aged 18 to 29 years vs. 39.8% of seniors aged 60 or over) reported receiving dental care in the 12 months prior to the survey (FNIGC, 2007). According to the results of the oral health component of the CHMS 2007–09 (Health Canada, 2010), a higher proportion of Canadians aged 20 to 79 years reported having visited a dental professional in the last year than did First Nations adults in the RHS 2008/10 (71.6% vs. 59.2%). The oral health component of the 2007–09 CHMS was a representative oral health survey of the Canadian population aged 6 to 79 years but was not designed to collect data on a representative sample of Aboriginal people living off-reserve and deliberately excluded people living in First Nations communities.

Consistent with these findings on access to oral health care, self-reported dental treatment needs are much higher among First Nations, compared to nearly two-thirds (65.8%) of the dentate population in Canada who had no treatment needs identified at the CHMS 2007–09 oral health examinations (Health Canada, 2010). As per the findings of RHS 2002/03 (FNIGC, 2005), 5.5% of First Nations aged 18 years and over felt they had at least one urgent dental condition, while they reported other dental needs ranging from orthodontics (3.6%), periodontal services (5.6%), oral surgery (12.4%), fluoride treatment (13.8%), and prosthodontics (14.0%), to restorative services (36.9%) and regular maintenance

such as dental checkups and cleanings (48.4%).

First Nations adults are likely to be disproportionately represented among those with poor oral health outcomes as they face unique health challenges as well as socio-economic and geographic challenges within their communities. However, the true levels of unmet dental needs necessitate a nationwide oral health survey with a clinical component. Household interview surveys such as the RHS do not collect clinical data on dental disease prevalence and severity. A simple but important indicator of the oral health status of the population is the proportion of people who have no natural teeth (the edentulous). Complete self-reported tooth loss (edentulism) is as reliable as clinically measured tooth loss. In RHS 2008/10, data on edentulism among adults were collected. Documenting First Nations' levels of edentulism is important because it reflects past experience of dental disease and the availability and accessibility of care. The retention of natural teeth is also a very desirable health outcome, because even though most edentulous people wear dentures, tooth loss still affects diet quality and nutrition as well as general health and quality of life (Locker & Quiñonez, 2009).

This chapter details First Nations people's access to dental care and reports on selected determinants, defined through the lens of the RHS Cultural Framework, that influence the ability to receive, use, and benefit from dental services (Dumont, 2005). The chapter also addresses barriers to accessing dental services and Non-Insured Health Benefits, the perceived levels of dental treatment needs, the prevalence of self-reported dentate status, denture use, and dental injuries among First Nations adults aged 18 or older in RHS 2008/10. To put these results into context, we compared them, when possible, with their age-matched, national-level counterparts in the nationwide oral health component of the CHMS of 2007–09 (Health Canada, 2010). This chapter also includes comparisons from First Nations communities from other periods: the 1997 RHS Pilot Survey (First Nations and Inuit Regional Health Survey National Steering Committee, 1999) and RHS 2002/03 (FNIGC, 2005). The RHS has been an important source of information on dental care utilization and treatment needs among First Nations, and by comparing current results with those from earlier surveys we have been able to evaluate trends in dental services use and perceived treatment needs of this population.

METHODS

Oral Health Content of RHS 2008/10

Six specific oral health questions were used as outcome measures in the analyses for this chapter. The questions sought information on dental care access, perceived dental treatment needs, presence of natural teeth, and use of dentures or bridges. In a separate section, adults were asked if they had experienced difficulties accessing dental care through the NIHB Program.

First Nations adults were asked when was the last time they had received any dental care. The response options were “less than six months ago,” “between six months and one year ago,” “between one and two years ago,” “between two and five years ago,” “more than five years ago,” and “never.” The corresponding population-weighted responses are summarized in Table 13.1 and were subsequently dichotomized into “one year ago or less” and “more than one year ago or never.” This cut-off point was used because visiting a dental health professional at least once in the previous 12 months is an indicator of access to care commonly reported in national surveys. It is, nevertheless, a crude indicator of dental care access, as one visit for an extraction counts the same as one or more visits for checkups and teeth cleaning.

In the second question, First Nations adults were asked to identify the barriers they experienced in accessing dental care. There were nine response options that were not mutually exclusive (the respondent could not select more than one option). The third question pertained to the health care access section of the adult questionnaire. First Nations adults were asked to report on their difficulties in accessing any of the health services provided through the NIHB Program. The question was broad and did not specify a time period, such as a year, for example. The response option “dental care” was selected for analysis.

Questions 4 and 5 focused on dentate status, or edentulism (complete tooth loss), and use of teeth replacements (i.e., full or partial dentures, false teeth, bridges, or dental plates). Each of these questions was answered with “yes” or “no,” whereas Question 6 asked First Nations adults to identify the types of treatment they currently needed, with nine response options not being mutually exclusive.

A seventh outcome was also considered. It was derived from a separate section of the RHS on injury and asked whether participants had been injured in the year prior to the survey, followed by information on what types of injuries they had experienced. Dental injury was then selected for analysis from among the injuries that were reported

Statistical Approach

Descriptive statistics (frequencies and proportions) were used to estimate the levels of access to oral health services, dentate status, treatment needs, and the other measured self-reported outcomes by the selected determinants of health. All estimates were based on weighted data to represent the First Nations population of adults. Variance estimation (95% confidence intervals, coefficients of variation) accounted for the complex sampling design. The difference between the proportions is considered statistically significant if p-value is less than 0.05.

RESULTS

Access to Dental Care

The percentage distribution of First Nations adults by last time dental care was obtained for any reason is shown in Table 13.1. Just over three-quarters (76.6%) or three out of four First Nations adults had received some type of dental care within the two years preceding the survey, and 32.4% had received care less than six months prior to the survey. A higher proportion of First Nations reported past year dental care than males (63.1% vs. 50%).

Age-specific RHS results presented in Table 13.1 also show variation in dental care utilization as a function of age. Generally speaking, the proportion of recent dental care access was highest among young adults and lowest among older adults. For example, 84.1% of those aged 18 to 29 years used dental services within the two years prior to the survey, while 29.5% of seniors aged 60 or over reported receiving dental care more than five years prior to the survey.

Table 13.1. Percentage Distribution of First Nations Adults, by Last Time Dental Care was Obtained for Any Reason, Gender, and Age (n = 10,353)

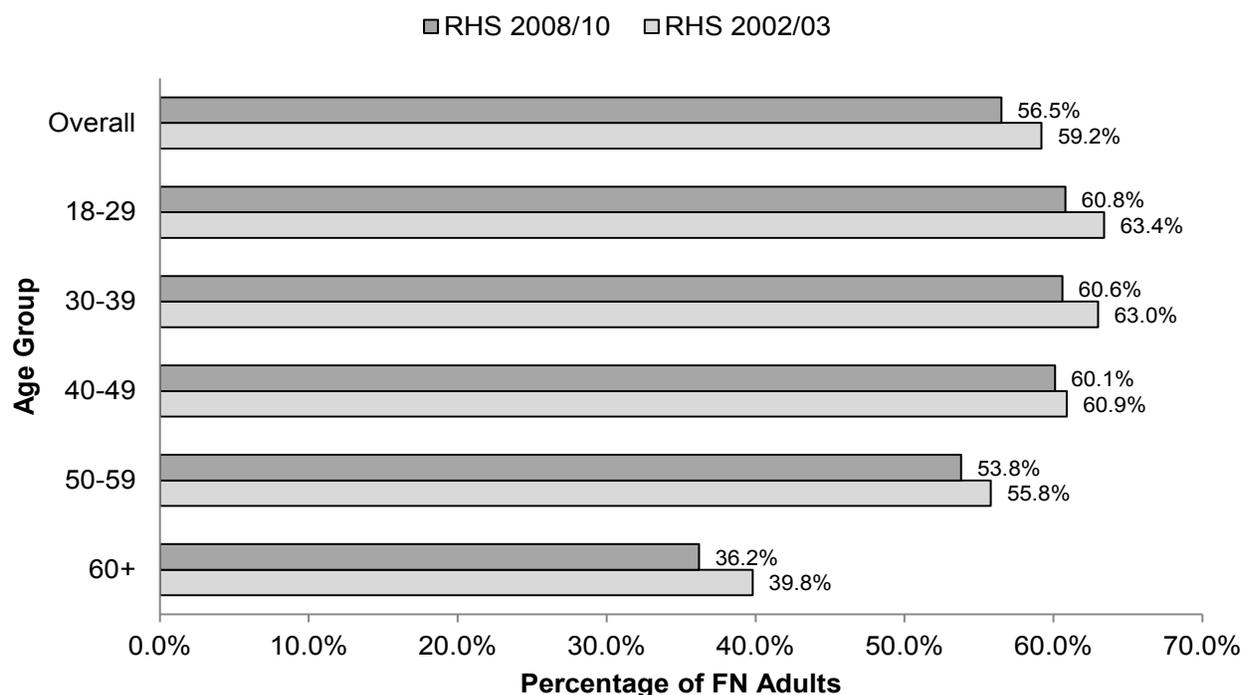
	Last time dental care was obtained					
	Less than 6 months ago	Between 6 months & 1 year ago	Between 1 & 2 years ago	Between 2 & 5 years ago	More than 5 years ago	Never
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
All	32.4 [31.1, 33.8]	24.0 [22.8, 25.3]	20.2 [19.0, 21.5]	12.0 [11.0, 13.1]	10.4 [9.7, 11.2]	0.8 [0.7, 1.0]
Male	28.6 [26.7, 30.5]	21.4 [19.7, 23.3]	21.3 [19.7, 23.0]	14.8 [13.2, 16.4]	12.8 [11.5, 14.1]	1.2 [0.9, 1.5]
Female	36.4 [34.5, 38.2]	26.7 [25.0, 28.5]	19.1 [17.3, 21.1]	9.3 [8.3, 10.4]	8.0 [7.3, 8.9]	0.5 ^E [0.4, 0.8]
Age group						
18–29	34.4 [31.9, 36.9]	26.7 [24.5, 29.0]	23.0 [20.8, 25.3]	10.0 [8.4, 11.8]	5.6 [4.4, 6.9]	0.5 ^E [0.3, 0.8]
30–39	33.3 [30.4, 36.3]	27.3 [24.2, 30.6]	21.6 [18.2, 25.5]	12.0 [9.8, 14.6]	5.2 [4.1, 6.6]	0.6 ^E [0.4, 0.8]
40–49	34.0 [30.7, 37.4]	26.1 [23.5, 28.9]	18.6 [16.5, 20.9]	12.6 [10.2, 15.4]	8.5 [6.8, 10.6]	^F
50–59	34.3 [30.5, 38.4]	19.4 [16.9, 22.2]	18.2 [15.8, 20.8]	13.3 [11.1, 15.8]	13.8 [11.9, 16.0]	1.0 ^E [0.5, 1.9]
60+	21.8 [19.4, 24.5]	14.4 [12.7, 16.4]	16.7 [14.4, 19.2]	14.5 [13.0, 16.2]	29.5 [26.8, 32.3]	3.0 [2.3, 4.0]

Note. CI = Confidence Interval. ^E = Interpret with caution (high sampling variability; coefficient of variation 16.6% to 33.3%). ^F = Estimate not provided because of extreme sampling variability or small sample size.

Compared to the Canadian Community Health Survey (CCHS) 2009 data on contact with dental professionals in the past 12 months, the 36.2% of First Nations aged 60 or older accessing dental services in the year prior to RHS 2008/10 was lower than the 56% of Canadians aged 65 or older reporting a visit for oral health care in the last year in the 2009 CCHS (Public Health Agency of Canada, 2010).

Compared to the results from RHS 2002/03 (FNIGC, 2005), no change was observed in dental care utilization in the past year among First Nations adults (see Figure 13.1). In RHS 2008/10, utilization stood at 56.5% (95% CI: 54.8, 58.2), compared to 59.2% (95% CI: 57.1, 61.1) in RHS 2002/03.

Figure 13.1. Percentage of First Nations Adults Reporting Any Dental Care in the 12 Months Prior to the Survey, by Age, in RHS 2008/10 ($n = 10,345$) and RHS 2002/03 ($n = 10,455$)



The prevalence of past year dental care, began to decline around 50 years of age (see Figure 13.1). This pattern was also observed in 2002/03 RHS results.

Table 13.2 compares prevalence of First Nations past-year dental care utilization to the prevalence in the overall Canadian population (Health Canada, 2010). Nearly 72% of Canadian adults 20 to 79 years received dental care in the 12 months prior to that survey, compared to the 56.5% of First Nations adults in the same age group. This discrepancy was consistent across all age groups, particularly among the elderly: 36.9% of First Nations seniors 60 to 79 years had some dental care in the 12 months prior to the survey compared with 68.4% of seniors in the CHMS.

Access to dental care also varied by dentate status, with edentulous First Nations adults receiving less dental care than their dentate counterparts. Compared to adults in the general Canadian population, the prevalence of past-year dental care utilization among dentate adults was lower for First Nation (see Table 13.2). Among edentulous adults, the only comparison possible is between older adults (60-79 years) in the CHMS and the RHS due to suppression of data within the general population (i.e., prevalence too low to reliably report). Dental care among edentulous adults 60-79 years was much lower among First Nations than adults of similar age in the general Canadian population.

The lowest rate of past-year dental care observed within was found among edentulous First Nations adults aged 60 years and up (16.3%) (60-79 years: 14.9%).

Table 13.2. Percentage of First Nations Adults Reporting Any Dental Care in the 12 Months prior to the Survey, by Age and Dentate Status, Compared with the General Canadian Population

Age group	Dental care in the 12 months prior to the survey		
		RHS 2008/10 (n = 10,255)	CHMS 2007–09 (n = 3,508)
		% [95% CI]	% [95% CI]
20-79 years (All)	Overall	56.4 [54.7, 58.2]	71.6 [68.4, 74.7]
	Dentate	59.7 [57.8, 61.5]	NA
	Edentulous	28.9 [25.4, 32.7]	NA
20–39 years	Overall	60.7 [58.2, 63.3]	67.8 [64.0, 71.4]
	Dentate	60.8 [58.2, 63.3]	67.9 [64.1, 71.5]
	Edentulous	59.6 [47.0, 71.1]	F
40–59 years	Overall	57.4 [55.0, 59.8]	76.7 [72.6, 80.4]
	Dentate	60.0 [57.5, 62.6]	78.5 [75.0, 81.6]
	Edentulous	36.5 [9.3, 44.3]	F
60–79	Overall	36.9 [33.8, 40.1]	68.4 [59.6, 76.0]
	Dentate	51.1 [46.9, 55.3]	79.3 [72.9, 84.5]
	Edentulous	14.9 [12.3, 18.0]	18.3 [13.6, 24.1]

Note. CI = Confidence Interval. F = Estimate not provided because of extreme sampling variability or small sample size.

When other determinants of dental service utilization among First Nations adults were utilized, higher rates of dental care in the year prior to the RHS were observed among high school graduates, those currently working for pay, females, those aged 18 to 49 years, those who participated in community cultural events ‘sometimes’ to ‘always/almost always’, those who are dentate, those who do not use a First Nations language more than other languages in their daily life, those with good/very good/excellent self-rated health, those not wearing teeth replacements (i.e., full or partial dentures, false teeth, bridges, or dental plates), and those who reported no limitations to their daily activities. Interestingly, migration (“moving off- and on-reserve more than once per year”) was not significantly associated with dental services utilization (see Table 13.3).

Table 13.3. Percentage of First Nations Adults Reporting Any Dental Care in the 12 Months Prior to the Survey, by Selected Determinants of Health

Health determinant (unweighted n)	Dental care in the previous 12 months	
	Wtd %	95% CI
All (10,353)	56.5	[54.8, 58.2]
Male (4,711)	50.0	[47.6, 52.4]
Female (5,642)	63.1	[60.9, 65.1]
18–29 yrs (2,364)	61.1	[58.3, 63.8]
30–39 yrs (1,770)	60.6	[56.6, 64.4]
40–49 yrs (1,713)	60.1	[56.8, 63.3]
50–59 yrs (1,920)	53.7	[50.3, 57.2]
60+ yrs (2,578)	36.3	[33.2, 39.4]
Does not use a First Nation language in daily life (6,332)	58.8	[56.7, 61.0]
Mostly uses a First Nation language in daily life (4,020)	52.3	[49.8, 54.9]
Did not graduate from High School (6,664)	50.8	[48.7, 52.9]
Graduated from High School (3,469)	65.9	[63.7, 68.1]
Does not currently work for pay (5,739)	49.8	[47.7, 51.9]
Currently works for pay (4,496)	63.8	[61.4, 66.1]
Self-rated general health		
Excellent/very good/good (7,746)	58.7	[56.7, 60.6]
Fair/poor (2,584)	49.0	[46.1, 51.9]
Non-smoker (4,865)	57.9	[55.0, 60.6]
Daily or occasional smoker (5,386)	55.5	[53.3, 57.6]
Edentulous (1,718)	29.1	[25.8, 32.8]
Dentate (8,547)	59.7	[57.8, 61.5]
Does not wear dentures (e.g., dentures) (6,501)	58.3	[56.3, 60.3]
Wears replacements (3,759)	51.6	[48.9, 54.2]
Activity limitations		
No (7,002)	58.3	[56.3, 60.2]
Yes, sometimes (2,006)	54.0	[50.4, 57.6]
Yes, often (1,043)	45.7	[41.1, 50.3]
Does not move off- and on-reserve more than once per year (4,809)*	59.9	[57.8, 61.9]
Moves off- and on-reserve more than once per year (898)*	57.6	[53.0, 62.1]
Participates in community cultural events		
Always/almost always (2,384)	60.8	[57.6, 63.9]
Sometimes (4,626)	59.0	[56.8, 61.2]
Rarely (1,916)	50.9	[47.6, 54.3]
Never (1,200)	47.4	[43.7, 51.1]

*Among those who have lived outside their own First Nations community

Barriers to Dental Care Access

Just below one-quarter (24.1%) of First Nations adults reported long waiting times for dental care (see Table 13.4). The other principal barriers in accessing care included unavailability of services in the area (18.0%), lack of coverage under Health Canada's NIHB Program (17.4%), and the perception that dental services are inadequate (15.5%). In a separate question, First Nations adults were asked if they had any trouble accessing services through the NIHB program in the past 12 months: 12.5% reported difficulties accessing dental services. A higher proportion of females reported certain barriers (i.e., services not covered by NIHB, prior

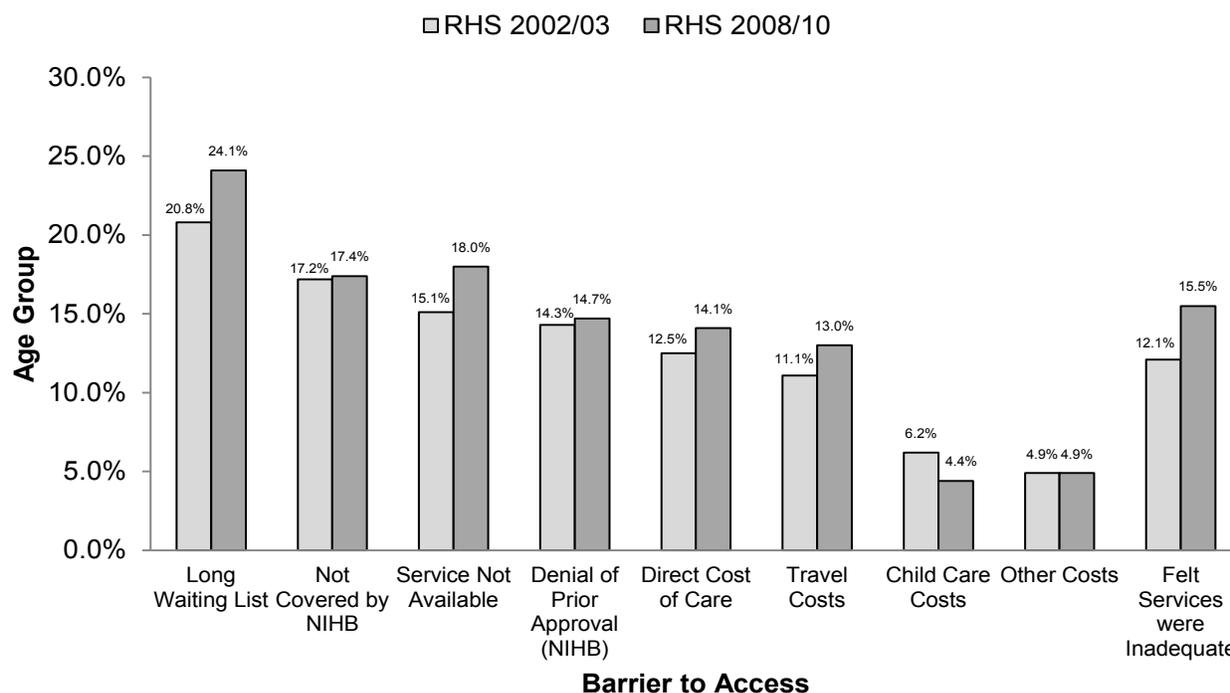
approval for dental services under NIHB denied, and childcare costs), compared to males (see Table 13.4).

As seen in Figure 13.2, the prevalence of barriers to dental care access has remained largely the same since RHS 2002/03.

Table 13.4. Barriers to Dental Care Access Reported by First Nations Adults in RHS 2008/10

Barriers to dental care access	Male		Female		All	
	%	95% CI	%	95% CI	%	95% CI
Dental services not available in my area (n = 10,459)	17.4	[15.8, 19.2]	18.5	[16.9, 20.3]	18.0	[16.6, 19.5]
Waiting list is too long (n = 10,320)	23.2	[21.2, 25.3]	25.1	[22.9, 27.4]	24.1	[22.3, 26.1]
Service not covered by NIHB (n = 9,979)	14.3	[12.5, 16.4]	20.5	[18.4, 22.7]	17.4	[15.7, 19.2]
Prior approval for services under NIHB was denied (n = 9,952)	11.9	[10.4, 13.7]	17.4	[15.5, 19.5]	14.7	[13.2, 16.3]
Direct cost of dental care (n = 10,061)	12.7	[11.0, 14.7]	15.4	[13.8, 17.2]	14.1	[12.6, 15.7]
Transportation costs (n = 10,195)	12.2	[10.7, 13.9]	13.7	[12.5, 15.1]	13.0	[11.8, 14.2]
Child care costs (n = 9,859)	3.4	[2.7, 4.3]	5.4	[4.7, 6.2]	4.4	[3.8, 5.1]
Other costs (n = 9,576)	4.1	[3.4, 5.0]	5.7	[4.8, 6.7]	4.9	[4.2, 5.6]
Felt dental services were inadequate (n = 9,433)	15.3	[13.5, 17.3]	15.7	[14.1, 17.5]	15.5	[14.2, 16.9]

Figure 13.2. Barriers to Dental Care Access Reported by First Nations Adults in RHS 2002/03 (n = 10,018–10,549) and RHS 2008/10 (n = 9,433–10,459)



Dentate Status and Use of Replacements

RHS 2008/10 asked respondents whether they had one or more of their own teeth (i.e., dentate status) and whether they wore full or partial dentures, false teeth, bridges, or dental plates to replace missing teeth.

Overall, 10.9% of First Nations adults reported being edentulous. Edentulism increased with age: 18-29 years (2.6% [1.9, 3.6]), 30-39 years (2.2% [1.7, 2.9]), 40-49 years (7.6% [5.9, 9.8]), 50-59 years (17.1% [14.7, 19.9]), and 60 years and up (41.8% [39.2, 44.4]). It

appears that First Nations adults aged 18 to 39 years had significantly lower levels of complete tooth loss than the older age cohorts. No gender differences were observed.

Table 13.5 compares edentulism among First Nation adults and among adults in the general Canadian population by age group. The greatest disparity in the prevalence of edentulism between First Nations and other Canadians occurred among the oldest age group - those aged 60-79 years - with 39% of First Nations being edentulous, as compared to 21.7% of their counterparts in the general Canadian population.

Table 13.5. Percentage of Edentulous Adults (20-79 years), by Gender and Age in the CHMS 2007-09 (*n* = 3,508) and RHS 2008/10 (*n* = 10,255)

	Percentage edentulous	
	RHS 2008/10	CHMS 2007-09
	% 95% CI	% 95% CI
All	10.8 [10.0, 11.7]	6.4 [4.9, 8.3]
Male	10.6 [9.5, 11.9]	6.3 [4.6, 8.5]
Female	11.0 [10.0, 12.1]	6.5 [4.9, 8.6]
20 - 39 years	2.5 [2.0, 3.1]	F
40 - 59 years	11.6 [10.1, 13.1]	4.4 ^F [3.0, 6.3]
60 - 79 years	39.9 [37.2, 42.6]	21.7 [15.7, 29.1]

Note. CI = Confidence interval. F = Estimate not provided because of extreme sampling variability or small sample size
^E Interpret with caution (high sampling variability; coefficient of variation 16.6% to 33.3%).

Nearly three out of four edentulous First Nations adults (74.7%) wear dentures (i.e., full or partial dentures, false teeth, bridges, or dental plates) (see Table 13.6). Denture wearing is more common among females than males (30.6% vs. 25.4%). Among the dentate, wearing dentures, either fixed or removable, is most common among older age groups, which is consistent with having fewer teeth.

Use of dentures among edentulous adults appears to be higher in the general Canadian population compared to that of First Nations adults. While 92.4% (95% CI [81.7, 97.1]) of edentulous Canadians aged 40 to 59 years wear both maxillary and mandibular dentures, 74.5% (95% CI [67.5, 80.5]) of edentulous First Nations adults of the same age group wear some form of denture.

Similarly, 93.5% (95% CI [89.1, 96.2]) of edentulous Canadians aged 60 to 79 years wear dentures, compared with relatively fewer (86.7%, 95% CI [83.3, 89.6]) edentulous First Nations adults of the same age group.

Table 13.6. Percentage of First Nations Adults Wearing Full or Partial Dentures*, by Gender, Age, and Dentate Status in RHS 2008/10

	Percentage wearing dentures*	
	Wtd %	95% CI
All (<i>n</i> = 10,790)	28.0	[26.7, 29.3]
Dentate (<i>n</i> = 8,887)	22.3	[21.0, 23.6]
Edentulous (<i>n</i> = 1,824)	74.7	[70.8, 78.2]
Male (<i>n</i> = 4,952)	25.4	[23.7, 27.2]
Dentate (<i>n</i> = 4,112)	20.3	[18.6, 22.2]
Edentulous (<i>n</i> = 807)	70.0	[63.9, 75.4]
Female (<i>n</i> = 5,838)	30.6	[29.0, 32.3]
Dentate (<i>n</i> = 4,775)	24.3	[22.7, 26.0]
Edentulous (<i>n</i> = 1,017)	79.0	[75.0, 82.5]
Age 18-29 (<i>n</i> = 2,434)	6.2	[4.9, 7.8]
Dentate (<i>n</i> = 2,344)	6.0	[4.7, 7.6]
Edentulous (<i>n</i> = 64)	F	----
Age 30-39 (<i>n</i> = 1,824)	13.2	[11.4, 15.3]
Dentate (<i>n</i> = 1,757)	12.4	[10.7, 14.4]
Edentulous (<i>n</i> = 52)	39.7	[28.0, 52.7]
Age 40-49 (<i>n</i> = 1,754)	30.8	[27.9, 34.0]
Dentate (<i>n</i> = 1,608)	28.5	[25.6, 31.7]
Edentulous (<i>n</i> = 141)	58.3	[44.9, 70.6]
Age 50-59 (<i>n</i> = 2,007)	50.9	[46.6, 55.3]
Dentate (<i>n</i> = 1,583)	44.2	[39.6, 48.9]
Edentulous (<i>n</i> = 411)	84.0	[75.6, 89.9]
Age 60+ (<i>n</i> = 2,762)	69.0	[66.3, 71.5]
Dentate (<i>n</i> = 1,587)	56.5	[53.3, 59.7]
Edentulous (<i>n</i> = 1,155)	86.3	[83.0, 89.1]

Note. CI = Confidence Interval. *n* = total number of respondents (unweighted count). F = Estimate not provided because of extreme sampling variability or small sample size. * Dentures = full or partial denture, false teeth, bridges, or dental plates.

Dental Injuries

According to RHS 2008/10, 18.6% (95% CI [17.5, 19.8]) of First Nations adults sustained an injury in the year prior to the survey, and out of those, only 5.4% cited a dental injury, 5.0%^E males and 6.1%^E females (95% CIs [3.2, 7.5] and [4.4, 8.5], respectively). This rate is well below the Canadian rate for clinically presented incisor trauma, estimated at 23.9% (95% CI [19.9, 28.4]) for non-Aboriginal people and at 19.9% (95% CI [10.8, 33.5]) for Aboriginal people living off-reserve, according to the findings of the 2007-09 CHMS (Health Canada, 2010). In RHS 2002/03, only 3.9% of First Nations adults reported that they experienced a traumatic dental injury serious enough to require dental care in the year prior to that survey (FNIGC, 2005). Although the prevalence of dental trauma has increased among First Nations adults living in First Nations communities over the five-year period between RHS 2002/03 and RHS 2008/10, so few participants sustained dental trauma that it was not possible to obtain reliable estimates or investigate the causes and risk or preventive factors of these injuries or their potential relationship with alcohol and other substance use.

Perceived Dental Treatment Needs

One in four (24.8%) First Nations adults had no self-reported dental treatment needs. In other words, three out of four First Nations adults (75.2%) perceived a need for dental treatment. Perceived need for restorative treatment, prosthodontics, fluoride treatment, and urgent care (among those with any treatment need) has decreased since the previous RHS 2002/03 (see Table 13.7). The prevalence of the other treatment needs has remained relatively stable since RHS 2002/03.

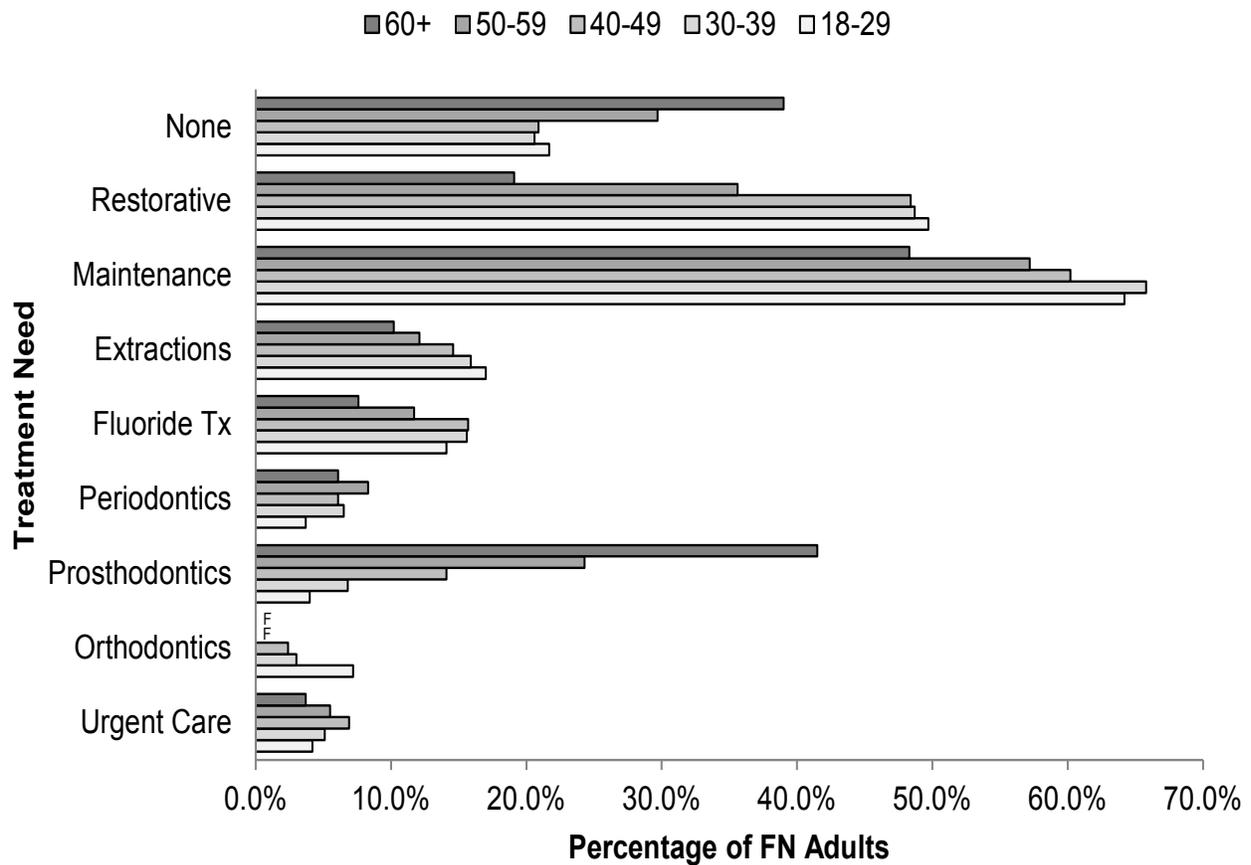
Table 13.7. Type of Treatment Needed (among those who indicated having a dental treatment need)

Type of dental treatment required*	RHS 2002/03 (n = 7,649)	RHS 2008/10 (n = 7,813)
	% [95% CI]	% [95% CI]
Restorative (e.g., cavities filled, crowns, bridges)	48.8 [46.2, 51.4]	43.9 [42.2, 45.6]
Maintenance (e.g., checkups or teeth cleaning)	63.9 [61.3, 66.6]	61.0 [59.0, 62.9]
Dental extractions	16.4 [14.9, 17.9]	14.8 [13.5, 16.1]
Fluoride treatment	18.3 [16.4, 20.3]	13.8 [12.5, 15.1]
Periodontics (gum care)	7.5 [6.3, 8.8]	5.7 [4.7, 7.0]
Prosthodontics (e.g., dentures, including repair and maintenance)	18.5 [16.7, 20.6]	13.8 [12.7, 14.9]
Orthodontics (e.g., braces)	4.7 [4.0, 5.5]	3.5 [2.9, 4.2]
Urgent care (dental problems requiring immediate attention)	7.3 [6.4, 8.4]	5.1 [4.5, 5.9]

*Multiple treatments accepted

Analysis by age group indicated that dental treatment needs, such as restorations and maintenance, decreased with age (see Figure 13.3, Appendix). Teeth extractions and fluoride treatment were also more common among younger adults, and the highest proportion reporting orthodontic needs was among those aged 18 to 29 (7.2%). Periodontal and prosthodontics needs increased with age: 8.3% of those aged 50 to 59 years needed periodontics and 41.5% of adults aged 60 years or older needed prosthodontic services. The need for urgent care peaked among those aged 40 to 49 years (6.9%).

Figure 13.3. Percentage of First Nations Adults Reporting Dental Treatment Needs, by Type of Treatment Required and Age in RHS 2008/10 (n = 7,805) (among those with any treatment need)



Note. F = Estimate not provided because of extreme sampling variability or small sample size.

With respect to type of treatment needs and dentate status (among those requiring any treatment), a greater proportion of dentate adults reported need for regular maintenance (64.9%), compared to 24.7% of edentulous adults (see Figure 13.3). In contrast, a large proportion of edentulous First Nations need prosthodontics services (55.1%), compared to dentate adults.

DISCUSSION

Various studies have shown that regardless of their relative access to or uses of the biomedical system, First Nations people continue to experience a higher burden of oral disease than their counterparts in the general Canadian population. The present RHS data confirm that a disparity still exists with regard to access to dental services. While 56.5% of First Nations adults reported receiving dental care the 12 months prior to the survey, 71.6% of Canadian adults in the Oral Health Module of the 2007–09 CHMS had seen a dental professional in the last year. National comparisons also show that

First Nations adults (20-79 years of age) are more likely to have lost all their natural teeth than non-First Nations in Canada (10.8% vs. 6.4%) and that relatively fewer (86.7%) edentulous First Nations aged 60-79 years wear dentures compared to 93.5% of edentulous Canadians in the same age range. Consequently, a large proportion of edentulous First Nations adults reported a need for prosthodontics services, 55.1%. While access to Western health care is only one determinant of health upon which First Nations depend for their health and wellness, it is evident that timely access to culturally appropriate dental care from an early age could prevent tooth loss and edentulism among First Nations adults.

When data on dental care access, self-reported dentate status, and perceived need for dental treatment are compared with Indigenous groups in other countries, the same pattern of inequality arises. For example, among Indigenous adults aged 35 to 54 years who participated in the Australian National Survey of Adult Oral Health in 2004–06, a lower percentage had made a dental visit in the

previous year than had non-Indigenous Australians (43.9% vs. 63% [Australian Research Centre for Population Oral Health, University of Adelaide, South Australia, 2009]). Similarly, a higher percentage of Indigenous adults aged 35 to 54 years were edentulous (7.6%) and reported a need for dentures (21.7%) or fillings or extractions (72.3%) (Australian Research Centre for Population Oral Health, University of Adelaide, South Australia, 2009).

Among younger adults in the RHS, restorations, maintenance, teeth extractions, fluoride treatment, and orthodontics were more common than periodontal and prosthodontic needs. Chronic periodontitis is a condition of adulthood, and 8.3% of those aged 50 to 59 years felt they required periodontal (gum) care such as scaling. Although clinical data collection is not a component of the RHS, the higher prevalence of diabetes among First Nations people compared with their counterparts in the general Canadian population would suggest that periodontal disease would be more prevalent in the First Nations population (FNIGC, 2005). A recent study found a high prevalence of periodontitis in adult members of the Sandy Bay First Nation in Manitoba (Brothwell & Ghiabi, 2009). Of the individuals studied, 42.6% suffered from moderate periodontitis, and 22.4% had either localized or generalized severe periodontitis (Brothwell & Ghiabi, 2009). It is possible that RHS respondents under-reported the need for periodontal services, as periodontal disease is generally asymptomatic.

It goes without saying that regular visits to a dental professional are required to achieve and maintain periodontal health in particular and good oral health in general. Evidence suggests that regular examinations and prompt follow-up care lead to better oral health. With better oral health, there is less of a drain on services and a concomitant reduction in health care expenditures. A study using dental service records from the NIHB Program for 1994–2001 investigated the hypothesis that program expenditures would be lower for clients with regular visits compared to clients whose visits were irregular (Leake, Birch, Main, & Ho, 2006). Contrary to expectations, the study found that clients with regular visits had the highest program expenditures (Leake et al., 2006). It is possible that clients who perceived themselves to be in poor oral health attended most frequently for examinations, but without data on oral health status, this hypothesis cannot be tested.

Fortunately, data collection on the clinical oral health status of all ages of First Nations people living in First Nations communities was conducted between February 2009 and February 2010. The First Nations Oral Health

Survey (FNOHS) was coordinated by the FNIGC, and the report will be released in 2012. The report will provide national estimates for a broad range of oral measures for First Nations living in First Nations communities so as to allow for comparisons with the national estimates from the 2007–09 CHMS (Health Canada, 2010). The data collected will provide a baseline for future oral health surveys in order to monitor oral health-related outcomes in this population and to assist policy-makers, program managers, and health care providers in implementing programs to maintain, promote, and improve oral health in First Nations communities across the country.

Information on risk factors and health determinants is important to consider in developing health promotion strategies aimed at improving a population's health. Particularly revealing in the RHS was the comparison of factors influencing utilization of dental care for First Nations adults. The highest rates of dental care within the year prior to the survey were found among those who graduated from high school (65.9%) or who were currently working for pay (63.8%). The role of social determinants in oral health is undisputed, but geographic factors also can affect the delivery and frequency of dental services to remote and isolated First Nations communities. Many First Nations communities do not have a resident dentist. Instead, dentists from southern Canada fly into remote communities to deliver services; often only the most serious cases are seen due to time limitations. Alternatively, First Nations children and adults have to be flown out of their communities for treatment and for dental emergencies, travelling great distances to reach a general dentist, a dental specialist, a denturist, or hospital services not available in their locality. Therefore, transportation issues, including costs associated with travel, can limit First Nations' access to a variety of dental services. These factors can be further compounded by weather conditions, which can make travel difficult. Results from RHS 2008/10 indicated that nearly one in four First Nations adults perceived long waiting lists for dental care; 18% indicated that services were not available in their communities; and 13% reported costs associated with travel for dental care. The role of the NIHB in determining access to services also was evident, as 17.4% of First Nations adults reported that the type of dental service required was not covered by the NIHB Program, and 14.7% had prior approval for services under NIHB denied. It is obvious that improvements in access to dental care for First Nations will not be achieved without some changes to the NIHB Program's limits and guidelines as well as a reduction in the administrative and bureaucratic requirements

that can burden dental care providers, notwithstanding the ethical role of “organized” dentistry, i.e., the dental associations who must be partners in addressing access issues among First Nations. Furthermore, the proportion of First Nations adults reporting barriers to dental care access has increased for most types of barriers since RHS 2002/03 (FNIGC, 2005). At the same time, self-perceived need for dental care for this group has also increased for most types of treatment since RHS 2002/03.

Finally, to support First Nations adults in achieving oral health status that is comparable to or better than that of other Canadians, it is imperative that oral health service provision, with its focus on clinical and curative services, also direct efforts towards health promotion (World Health Organization, 1986). Health and dental services must embrace an ecological or holistic approach to health favoured by First Nations peoples by concentrating on the total needs of the individual as opposed to simply treating the diseased part. Oral health care for First Nations populations is typically provided within a culturally inappropriate, Western-medical model or framework that ignores or undermines traditional medical practices, attitudes, and health knowledge. The RHS Cultural Framework, on the other hand, supports community-based approaches to improving and strengthening the health and wellness of First Nations people (Dumont, 2005). By working within this cultural framework, we can increase the odds that First Nations adults will have a healthier dentition and a healthier life

CONCLUSIONS

The survey results revealed that First Nations adults living in First Nations communities in Canada have less access to dental care than the rest of the Canadian population. Rates of dental care within the 12 months prior to the survey declined with increasing age of First Nations adults in this survey and were lower among the edentulous than the dentate. These inequalities may explain, in part, the twofold difference in the prevalence of edentulism between older First Nations and their age-matched counterparts in the general Canadian population, as well as First Nations adults’ lower proportions of denture wearing. All of these results are consistent with the findings that significantly more First Nations adults in RHS 2008/10 reported dental treatment needs than did those in RHS 2002/03. Access to professional dental care appears to be strongly associated with the determinants of health such as age, education, employment, language, and culture. These data clearly indicate that we need to address the determinants of First Nations’ health and remove the barriers to dental care access for First

Nations living on-reserve or in northern communities in order to improve their oral health status. Unfortunately, barriers to dental care access have not undergone any major changes since the results from RHS 2002/03. For First Nations people to achieve improved access to care and improved oral health, resources should be directed at reorienting dental services towards health promotion. There must be a focus on interventions that have the potential to reduce inequalities between First Nations people and other Canadians where oral health and access to care are concerned. For example, programs that adopt a holistic strategy reflecting Aboriginal culture, traditional practices, and world views should be implemented. Furthermore, it is important to ensure that every program or policy include a comprehensive evaluation by ethnicity so that researchers and policy-makers are aware of the progress being made to reduce the unequal distribution of oral disease and its determinants.

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Chapter 14

Injury and Disability

EXECUTIVE SUMMARY

Injury

First Nations people living on-reserve and in northern communities experience a disproportionate amount of injury compared to that of the general Canadian population. The First Nations Regional Health Survey (RHS) 2008/10 of adults aged 18 years or older in First Nations communities across Canada found that nearly one-in-five (18.6%) reported having been injured in the 12 months prior to the survey. Falls or trips were the most frequently identified causes of injury (35.2%), followed by overextension or strenuous movement (12.9%), accidental contact with another person or animal (11.0%), motor vehicle accidents (9.9%), and assault (domestic or family and other combined, 10.9%). Results revealed that causes of injury varied by age and gender. For example, use of machines and tools were more often reported by men as the cause of injuries (compared to women), while falls and trips were more often reported as the cause of injury among older adults (compared to younger adults). Overall, men aged 18 to 34 years were most affected by injury, with 27.6% experiencing an injury in the 12 months prior to the survey. Alcohol, marijuana, or other drugs were an influence in 28.9% injuries overall. A higher proportion of adults who consume alcohol (especially among those who drink heavily) and use cannabis experienced injury compared to non-users.

Disability

More than one-quarter of First Nations adults (27.9%) reported activity limitations in their daily lives. Common challenges included problems related to vision, such as reading; lifting or carrying weight; and physical exertion, such as climbing a flight of stairs without resting. Vision, hearing, ambulation, dexterity, and pain tended to be worse with age. Cognitive challenges, including memory, thinking, and problem solving, were most common among the youngest and oldest adults. Speech, that is, being understood, was more of a challenge for young adults aged 18 to 39 years than for those aged 50 to 59 years. Emotional challenges were distributed equally across age groups. The prevalence of activity limitation was almost twice as high among those reporting injuries and five times higher among those reporting one or more health conditions.

KEY FINDINGS

Injury

- Nearly one-in-five adults (18.6%) reported having been injured in the 12 months prior to the survey. Young men aged 18 to 34 years demonstrated the highest proportion of injury (27.6%).
- “Fall or trip” was the most common cause of injuries, reported by more than a third (35.2%) of First Nations adults who reported having been injured. Assaults, including domestic or family violence, were the cause of roughly one-in-ten injuries (10.9%).
- Alcohol, marijuana, or other drugs were an influence in 28.9% of injuries. The majority of those who were injured during an assault reported that substance use was involved (70.4%).
- A higher percentage of injury was experienced by those with lower personal and household incomes and by those who engage in heavy drinking (i.e., 5+ drinks at least once per month for one year).

Disability

- More than one-quarter of adults (27.9%) reported being limited in the kinds or amounts of activity they could engage in because of a physical or mental condition.
- The percentage of First Nations adults reporting disabilities increased with age. Among those aged 55 or older, more than half (50.5%) reported having an activity limitation.
- The most commonly reported limitations included difficulty seeing or reading newsprint (19.8%), lifting or carrying 10 pounds (15.8%), and climbing a flight of stairs without resting (15.0%).
- Average vision, hearing, ambulation, dexterity, and pain scores all worsened with age. In the speech domain, which involved “being understood,” younger adults scored lower than older adults. In the cognitive domain, which involved memory, thinking, and problem solving, the youngest (18 to 29 years) and oldest (60 years or above) adults scored lowest.
- The percentage of First Nations adults with one or more health conditions was nearly five times higher for those who reported an activity limitation than for those who did not.
- First Nations adults with lower personal or household incomes, adults who were less active, and adults who were overweight or obese reported higher levels of activity limitations.
- First Nations adults with an activity limitation more often reported “fair” or “poor” health and less often reported “excellent” or “very good” health.

INTRODUCTION

Injury and disability are two common, frequently serious, sometimes related causes of suffering. First Nations adults living in First Nations communities experience a disproportionate amount of both.

Injury

Between the ages of 1 and 44, injuries are the leading cause of death among First Nations people (Health Canada, 2003) and among Canadians in general (Public Health Agency of Canada, n.d.). Among Registered Indians¹, external causes² are responsible for 21% of deaths among males and 11% among females. For First Nations people, injuries account for more than half of all potential years of life lost, more than all other causes combined (Health Canada, 2003).

Age-standardized mortality rates from external causes are 3.5 times higher for Registered Indian males and 3.7 times higher for Registered Indian females compared to non-Aboriginal Canadians (Tjepkema, Wilkins, Sénécal, Guimond, E. & Penney, 2009). Suicide accounts for roughly one-sixth (Tjepkema et al., 2009) to one-quarter (Health Canada, 2001) of all externally caused deaths among First Nations adults.

Rates of injury are also higher among First Nations people than among the general Canadian population. As an example, First Nations people in British Columbia were 1.8 times more likely to be hospitalized for injuries than other British Columbian residents (Turcotte et al., 2006). Similarly, First Nations people in Alberta had twice the rate of injury-related hospitalization and 1.5 times the rate of visits to an emergency department than other Albertans. The rate-ratios for purposely inflicted injuries were nearly seven times higher (Alberta Centre for Injury Control & Research, 2005).

The high rates of injury and mortality due to injury among First Nations in Canada indicate that it is important to more fully understand injury in First Nations communities. It is essential not only to explore injury rates among First Nations and other Canadians, but also to understand the subgroups that are most affected by injury and the factors associated with it.

¹ Registered Indian refers to an individual recognized by the federal government as being registered under the Indian Act.

² External causes refer to reasons for the existence of a medical condition implicating a specific object or process originating outside of the body. External causes includes accidents, assault, intentional self-harm and injuries arising from events of undetermined intent.

Disability

Approximately one in seven Canadians (14.3%) had a disability in 2006, up from one in eight (12.4%) in 2001. The rates ranged from 3.7% among children from birth to age 14 years to over half (56.3%) of those aged 75 years or over. The most common types of disability were pain, mobility, and agility (Human Resources and Skills Development Canada, n.d.). People with disabilities earn less, on average, and are more likely to have lower incomes. They are under-represented in most employment sectors. About one in seven (14.8%) had health care needs that were not being met. The figure was 30% among those with the most severe disabilities (Human Resources and Skills Development Canada, 2010).

Like injury, the prevalence of disability has been shown to be greater among First Nations than among the general adult population of Canada. First Nations adults with disabilities also have had worse outcomes than those without disabilities in terms of formal educational attainment, income, employment, and health (First Nations Information Governance Committee [FNIGC], 2005).

Contemporary understanding of disability has moved away from a medical model with its focus on the individual with “inabilities” resulting from a “damaged” or “abnormal” body or mind. The RHS framework, like the World Health Organization’s model (World Health Organization, n.d.), conceptualizes disability more broadly—in terms of complex interactions between people and their environment resulting in activity limitations. For example, one’s environment, such as unshoveled walkways and unsafe workplaces, can make one more susceptible to experience activity limitation.

This chapter uses a holistic view of both disability and injury to provide an overview of injury and activity limitations among First Nations adults living in First Nations communities in Canada. It presents a detailed description of the types of injuries and activity limitations, and provides breakdowns by age, gender, and other demographic and contextual variables. The chapter also highlights how injury and activity limitations relate to other self-reported measures of health.

METHODS

This chapter focuses on responses to the injury and activity limitation questions in the adult section of RHS 2008/10. First Nations adults who participated in RHS 2008/10 were asked whether they had been injured in the 12 months prior to the survey. Those who answered “yes” were then asked about the type of injury, the body parts

affected, where the injury occurred, the activity they were involved in when the injury occurred, the cause of the injury, and whether or not alcohol or drugs were involved.

First Nations adults were also asked about their level of disability. They were asked whether they were limited in the types or amounts of activities they could perform at home, at work, or elsewhere because of a physical or mental condition or health problem (response options: ‘yes, often’, ‘yes, sometimes’, and ‘no’). Respondents were asked whether they had difficulty seeing/reading newsprint (with glasses or contacts if normally used), hearing normal conversation (with hearing aid if normally used), having their speech understood by those who speak the same language, lifting or carrying 10 pounds, walking for 5 minutes without resting, or climbing a flight of stairs without resting. Respondents were also asked a series of questions based on the Health Utility Index (HUI). The HUI, which measures the health domains of vision, hearing, speech, ambulation and mobility, pain, dexterity, self-care, emotion, and cognition, can be used to create a measure of health status or health-related quality-of-life (Health Utilities Inc, n.d.). The HUI was used to create single-attribute scores for a series of health domains as well as an overall multi-attribute score. The highest possible score being 1.0.

The injury results are presented first, followed by those for disability. Any differences described between

groups are statistically significant unless otherwise noted.

The associations between injury and disability and various covariates were also assessed.

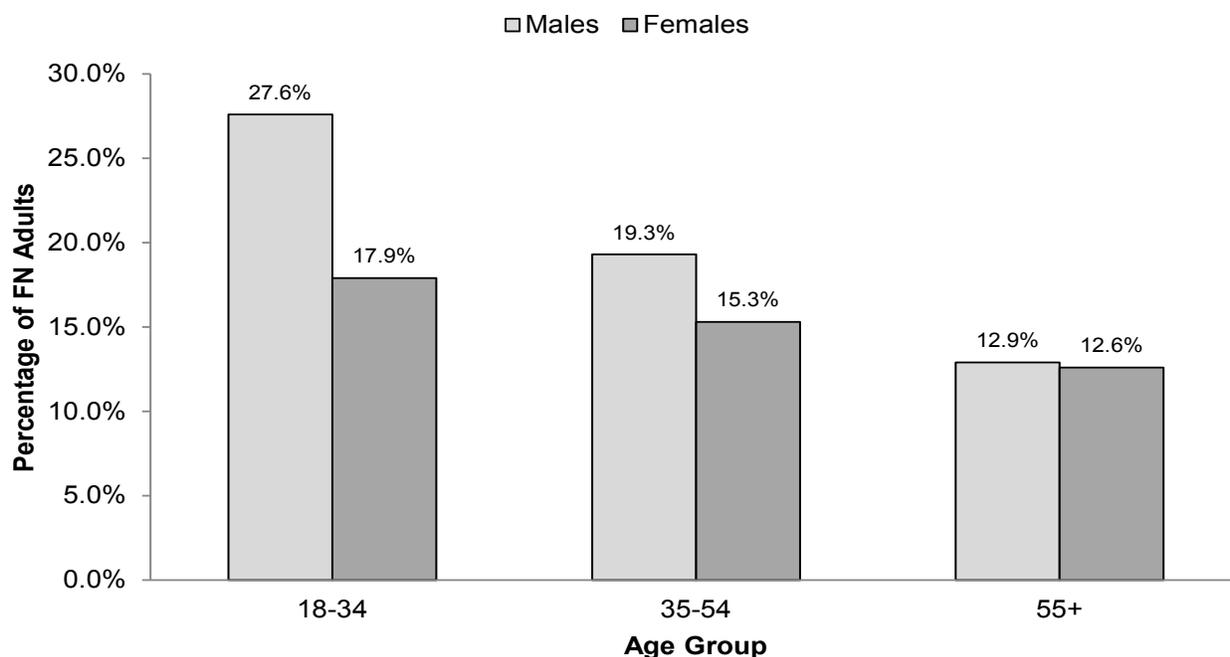
RESULTS

Injury

Nearly one in five (18.6%, 95% CI [17.5, 19.8]) adults aged 18 or over reported being injured in the 12 months prior to the survey. Although comparisons must be made cautiously, due to changes in the wording of the question between phases of the RHS, this rate of injury appeared to be lower than what was reported for a similar question in RHS 2002/03, yet still higher than the rate reported by all Canadians in 2009. In RHS 2002/03, 28.8% of respondents indicated that they had experienced an injury in the 12 months prior to that survey that “required the attention of a health care professional” (FNIGC, 2005). In the 2009 Canadian Community Health Survey (CCHS), 8.1% of Canadians aged 12 or over reported injuries in the previous 12 months for which they sought medical care (Statistics Canada, n.d.).

In RHS 2008/10, more First Nations men than women reported injuries (21.3% vs. 15.8%, 95% CIs [19.7, 23.0] and [14.3, 17.4]). The youngest men (18 to 34 years old) had the highest proportion of injuries (27.6%, 95% CI [26.1, 29.6]). The age- and gender-specific injury rates for adults are provided in Figure 14.1.

Figure 14.1. Percentage of First Nations Adults Injured in the 12 Months prior to the Survey, by Age Group and Gender n = 10,868.



Note. Adults were asked, “Have you been injured in the past 12 months?”

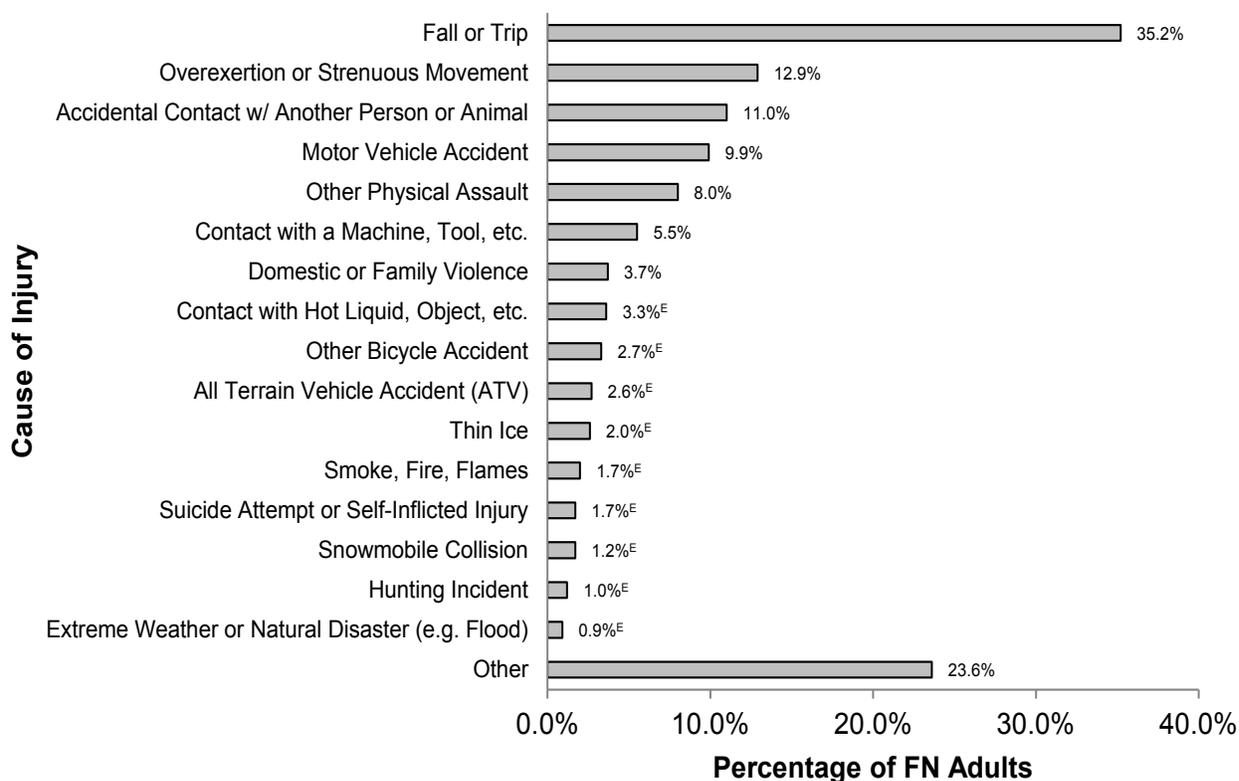
Although the specific questions and rates of injury vary, the age and gender patterns in RHS 2008/10 are similar to those from RHS 2002/03 (FNIGC, 2005), as well as to those for the general Canadian population (Statistics Canada, n.d.) and the off-reserve Aboriginal population (Tjepkema, 2005). In all sources, young men were at the highest risk for injury.

Causes, locations and types of injuries

As shown in Figure 14.2, “fall” was by far the most common cause of injury, reported by more than one-third

(35.2%) of those injured. Following this was “overexertion or strenuous movement” (12.9%), “accidental contact with another person or animal” (11.0%), “motor vehicle accident” (9.9%), and “other physical assault” (8.0%), 95% CIs [31.6, 39.0], [10.6, 15.6], [8.8, 13.6], [7.8, 12.5], and [6.3, 10.0], respectively. Combining the latter with “domestic or family violence” (3.7%, 95% CI [2.8, 5.0]) increased the percentage of injuries caused by assault to about one-in-ten (10.6%). Of those injured in a motor vehicle accident, 70.7% (95% CI [59.9, 80.0]) indicated that they were wearing a seatbelt at the time

Figure 14.2. Cause of Injuries (among those who were injured) (n = 1,713)



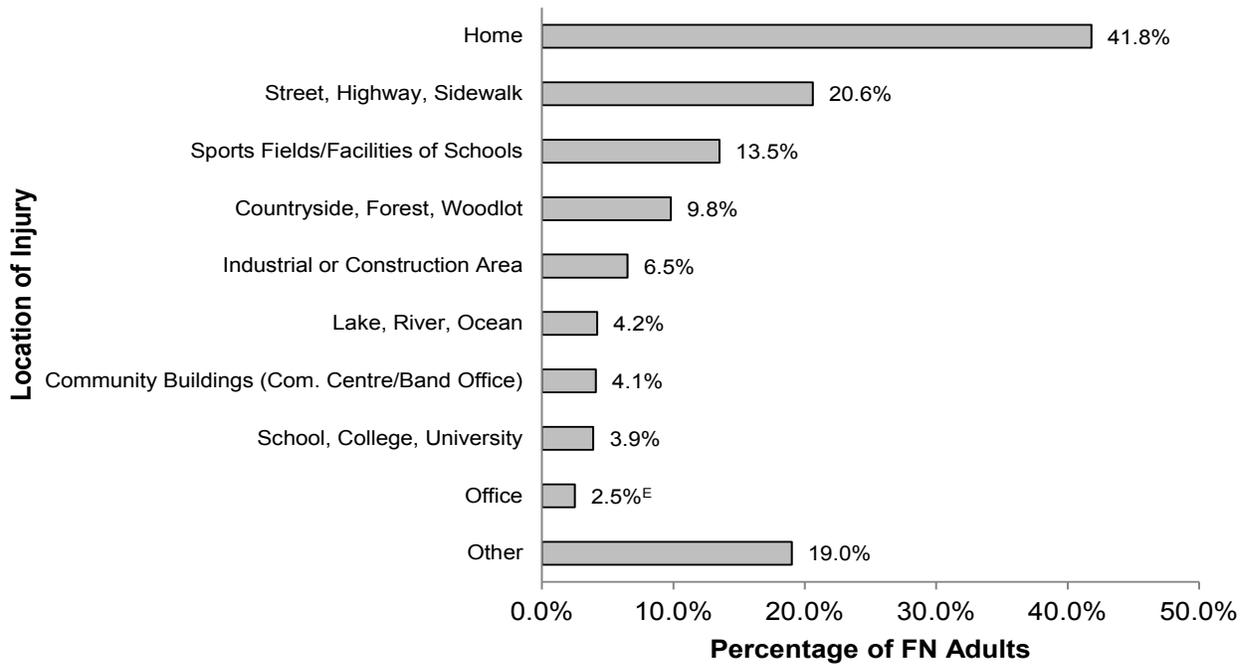
^E High sampling variability. Use figure with caution.

Note. 'Boating accident' percentage suppressed due to low cell size (n < 5) or very high sampling variability (CV > .333).

Location where injury occurred

The most common locations for the occurrence of injuries was in the home (41.8%), followed by “street, highway, sidewalk” (20.6%), “sports fields/facilities of schools” (13.5%), and “countryside, forest, woodlot” (9.8%), 95% CIs [38.3, 45.4], [18.0, 23.4], [11.4, 15.9], and [8.2, 11.7], respectively (see Figure 14.3).

Figure 14.3. Location Where Injuries Occurred (among those who were injured) (n = 1,713)



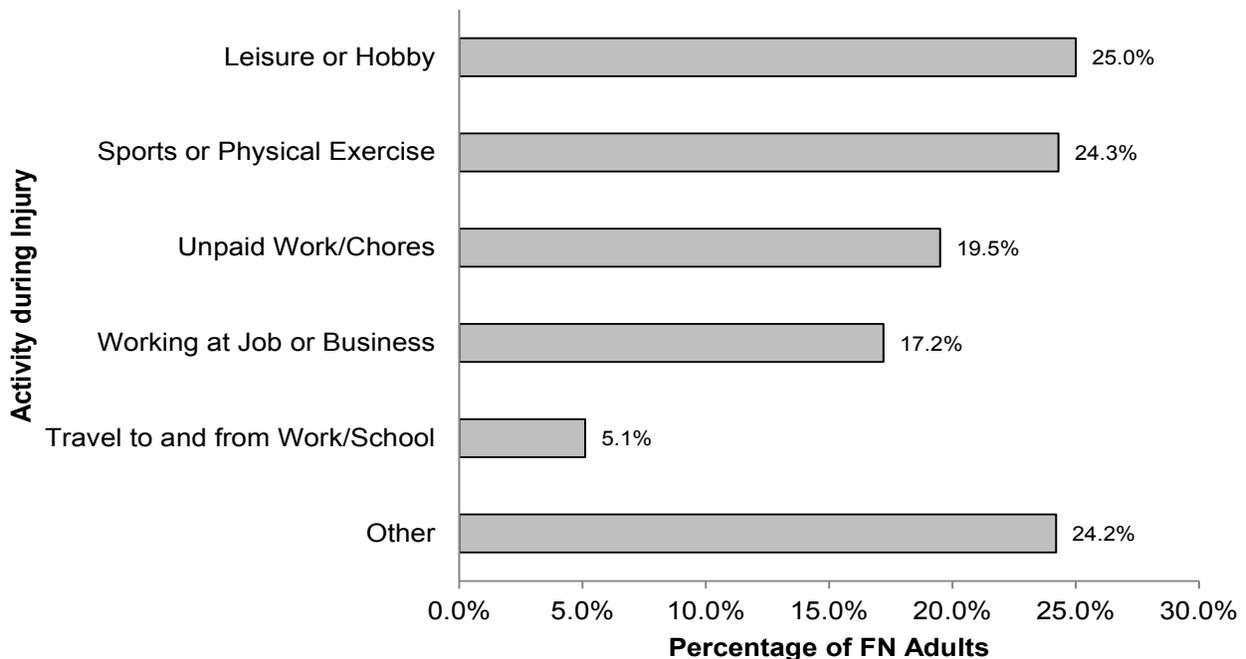
^E High sampling variability. Use figure with caution.

Activity when injured

Injuries occurred while people were engaged in a variety of activities. The most common were identified as “leisure or hobby” activities (25.0%), “sports or

physical exercise” (24.3%), “unpaid work/chores around the house” (19.5%), and “working at a job or business” (17.2%), 95% CIs [21.6, 28.7], [21.3, 27.5], [17.2, 21.9], and [14.9, 19.8], respectively (see Figure 14.4).

Figure 14.4. Activity When Injured (among those who were injured) (n = 1,713)



The most common injuries were broken or fractured bones (33.1%), major strains or sprains (32.6%), and minor cuts, scrapes, or bruises (28.8%). The body parts most often injured were hands (25.4%), ankles (22.9%), knees (20.5%), and arms (19.5%). The other types of injuries and body parts affected are listed in Table 14.1.

Table 14.1. Types of Injuries and Body Parts Injured (among those who reported injury) (n = 1,713)

Types of injuries	%	CI (95%)
Broken or fractured bones	33.1	[29.8, 36.5]
Major sprain or strain	32.6	[29.9, 35.7]
Major cuts, scrapes or bruises	28.8	[25.9, 31.8]
Repetitive strain	8.8	[7.2, 0.8]
Concussion	8.5	[6.4, 11.1]
Buns or scalds	7.5	[6.1, 9.2]
Dislocation	7.4	[5.7, 9.4]
Dental injury	5.4	[4.1, 7.1]
Hypothermia, frostbite, cold exposure	1.0 ^E	[0.6, 1.7]
Poisoning	F	F
Injury to internal organ	2.5 ^E	[1.5, 4.0]
Other	15.6	[13.6, 17.9]
Body Part		
Hand	25.4	[22.6, 28.5]
Ankle	22.9	[20.0, 26.1]
Knee	20.5	[18.0, 23.1]
Arm	19.5	[17.2, 22.1]
Leg	17.0	[14.8, 19.4]
Head	16.4	[14.1, 19.0]
Foot	15.4	[13.3, 17.6]
Wrist	15.1	[12.9, 17.7]
Torso	11.8	[9.9, 14.0]
Eye(s)	4.8	[3.8, 6.2]
Other	22.9	[20.0, 26.0]

^E High sampling variability. Use figure with caution.

^F Statistic suppressed due to low cell size (n < 5) or very high sampling variability (CV > .333).

Injury and substance use. The survey asked respondents whether alcohol, marijuana, or other substances had had “an influence” on the injury. One-quarter of First Nations adults (25.0%, 95% CI [21.7, 28.6]) identified alcohol as having had an influence on their injuries. Fewer First Nations adults cited marijuana or other substances (2.5% and 1.3%, respectively, 95% CIs [1.5, 4.3] and [0.7, 2.5]). Overall, 28.9% (95% CI [25.2, 32.9]) of First Nations adults who reported experiencing an injury identified substance use as an influence.

Covariates of injury

Gender. Gender differences in cause of injury were observed. Prevalence of the most common causes of injury by gender is reported in 14.2. Among those reporting injury a higher proportion of First Nations men than women reported injuries caused by “other physical assault” and “contact with a machine, tool etc.”

Age groups. Causes of injury varied by age group (see Table 14.2). Prevalence of injury due to “accidental contact with another person or animal” was highest among youth 18 to 29 years, and then decreased with age. Prevalence of “other physical assault” was also more commonly reported among younger adults. In contrast, a higher prevalence of adults aged 60 years or over reported that falling was the cause of their injury. Finally, injury from overexertion was highest among those 40-49 years of age.

Table 14.2. Most Common Injury Causes, by Age Group and Gender (among those who reported injury) (n = 1,713)

Age Group/Gender	%	CI (95%)
Fall		
18–29	32.9	[28.4, 37.9]
30–39	36.8	[27.9, 46.7]
40–49	34.4	[28.2, 41.3]
50–59	32.1	[25.5, 39.5]
60+	50.5	[42.8, 58.1]
Male	31.7	[27.6, 36.1]
Female	40.1	[34.6, 45.8]
Overexertion or strenuous activity		
18–29	8.4	[6.2, 11.4]
30–39	14.9	[10.6, 20.4]
40–49	20.2	[14.6, 27.2]
50–59	14.6 ^E	[10.1, 20.5]
60+	8.0 ^E	[5.0, 12.6]
Male	14.0	[11.4, 18.1]
Female	10.8	[8.4, 13.6]
Accidental contact with another person or animal		
18–29	16.8	[12.9, 21.6]
30–39	9.8 ^E	[5.0, 18.3]
40–49	9.4 ^E	[5.7, 15.0]
50–59	3.8 ^E	[1.9, 7.4]
60+	1.8 ^E	[0.9, 3.9]
Male	11.6	[9.3, 14.5]
Female	10.0	[6.2, 15.7]
Motor vehicle collision		
18–29	9.2 ^E	[6.1, 13.8]
30–39	6.4 ^E	[4.0, 10.0]
40–49	15.1 ^E	[10.7, 20.9]
50–59	11.7 ^E	[6.8, 19.3]
60+	5.4 ^E	[2.8, 10.3]
Male	9.4	[6.8, 12.9]
Female	10.6	[8.1, 13.7]
Other physical assault		
18–29	10.5	[7.7, 14.2]
30–39	9.4 ^E	[6.4, 13.7]
40–49	7.7 ^E	[4.2, 13.5]
50–59	3.2 ^E	[1.7, 5.6]
60+	1.6 ^E	[1.0, 2.5]
Male	10.1	[7.8, 13.0]
Female	5.0 ^E	[3.1, 7.8]

Contact with a machine, tool, etc.		
18–29	4.8 ^E	[2.9, 7.7]
30–39	4.4 ^E	[2.7, 7.0]
40–49	9.6 ^E	[6.0, 15.1]
50–59	F	[2.2, 9.9]
60+	F	[1.1, 6.3]
Male	8.3	[6.2, 10.9]
Female	1.6	[1.0, 2.7]

^E High sampling variability. Use figure with caution.
^F Statistic suppressed due to low cell size (n < 5) or very high sampling variability (CV > .333).

Income. A higher proportion of those with lower personal incomes (under \$20,000 per year or income loss) were injured compared to those with higher personal incomes (\$60,000 or above)—21.4% vs. 12.8% (95% CIs [19.8, 23.2] and [8.3, 19.2], respectively).

Education. No association was observed between level of education and injury prevalence.

Alcohol consumption. Lower prevalence of injury was observed among those who did not consume alcohol in the past 12 months (12.2%, 95% CI [11.1, 13.5]), compared to those who consume alcohol, but not heavily (17.5%, 95% CI [15.4, 19.9]) and those who consume alcohol heavily (i.e., 5 + drinks per sitting at least once per month for past year) (24.6%, 95% CIs [22.6, 26.7]).

Cannabis use. A higher proportion of adults were injured who have used cannabis at least once in the past year (compared to those who did not use cannabis) (26.0% vs. 14.6%, 95% CIs [23.9, 28.4] and [13.4, 15.8]).

Self-reported health status. Compared with those who were not injured, a lower proportion of First Nations adults who had been injured rated their health as “excellent” (10.3% vs. 15.6%, 95% CIs [8.4, 12.6] and [14.4, 16.8]). Additionally, compared to the previous year, a higher proportion of adults who were injured viewed their health as being “somewhat worse” (17.7% vs. 10.4%, 95% CIs [15.6, 20.1] and [9.5, 11.5]) or “much worse” (3.9% vs. 2.1%, 95% CIs [2.8, 5.2] and [1.8, 2.6]) over the past 12 months, compared to those who were not injured.

Activity limitations. A higher proportion of First Nations adults who were injured reported activity limitations “at least sometimes” compared to those who had not been injured in the 12 months prior to the survey (40.6% vs. 24.8% among those not injured, 95% CIs [37.2, 44.1] and [23.3, 26.3]).

Continued ...

Health utility index. The average HUI score among those who experienced injuries was lower than among those not injured (0.806 vs. 0.716, 95% CIs [0.798, 0.814] and [0.696, 0.736]).

Disability

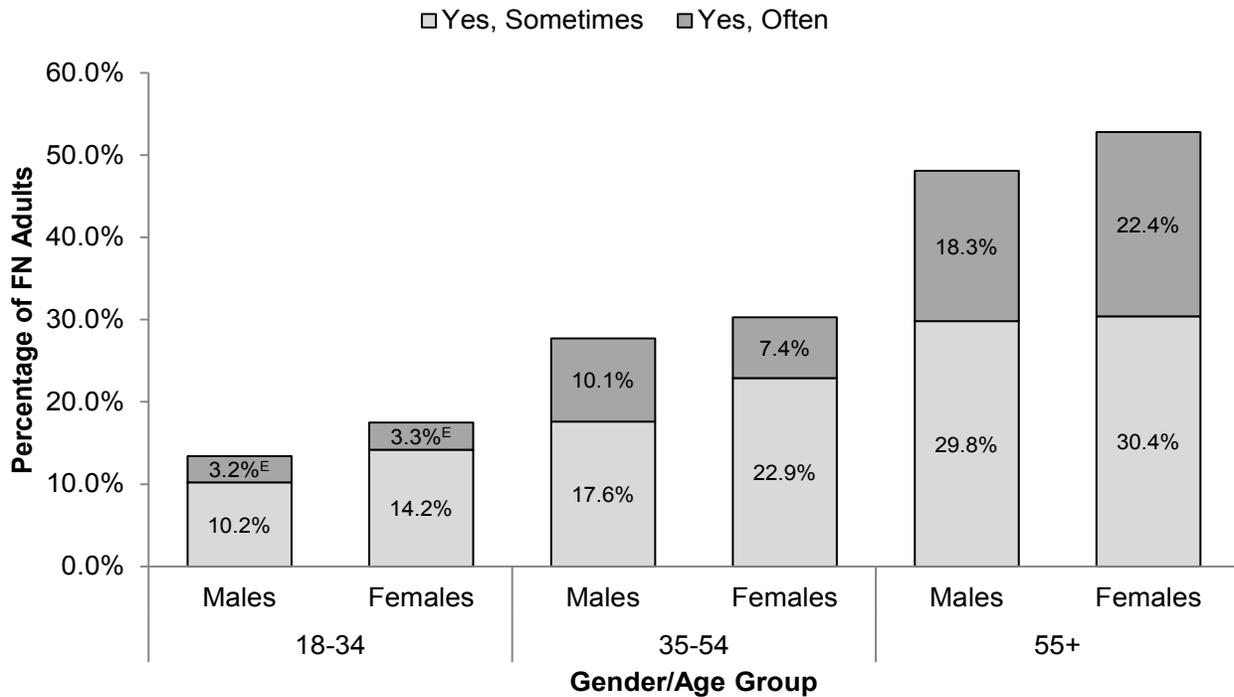
Overall, more than one-quarter (27.9%, 95% CI [26.3, 29.5]) of adults reported being limited in the kinds or amount of activity they could do because of a physical or mental condition or a health problem: 19.0% (95% CI [17.7, 20.3]) said they experienced these limitations “sometimes” and 8.9% (95% CI [8.0, 9.8]) said they experienced these limitations “often.”

Gender. As shown in Figure 14.5 activity limitation was somewhat higher among women.

Age groups. Approximately one in six (15.5%) people 18 to 34 years old reported an activity limitation at least “sometimes”, compared to half (50.5%) of those 55 years or older (see Figure 14.5).

Compared to the general Canadian population, the proportion of First Nations adults experiencing limitations was significantly higher among those 45 to 64 years old (37.8% vs. 32.9%) and those of 65 years or older (57.4% vs. 48.2%), 95% CIs [35.6, 40.1], [31.8, 34.1], [53.8, 60.9], and [47.0, 49.5], respectively (Health Utilities Inc, n.d.).

Figure 14.5. Percentage of First Nations Adults who reported Activity Limitations Sometimes or Often, by Age Group and Gender (n = 10,616)



^E High sampling variability. Use figure with caution.

Types of activity limitation

Those who reported limitations due to either physical or mental conditions or a health problem reported difficulties with six different types of activities. The most common difficulty, reported by 42.4% of First Nations adults with an activity limitation was lifting or carrying 10 pounds. Almost as many reported difficulties with climbing a flight of stairs without resting (38.7%), followed by 31.6% who reported being limited in seeing or reading newsprint; 29.5% reported difficulty walking for five minutes without resting. Approximately one in five (19.2%) reported being limited in hearing normal conversations,

and 11.2% reported difficulty having speech understood by those who speak the same language (95% CIs [39.3, 45.5], [35.8, 41.6], [28.9, 34.4], [26.8, 32.4], [17.0, 21.6], and [9.7, 12.8], respectively). The rates for each type of limitation increased with age (see Table 14.3). A review of the detailed results by age and gender found that a higher percentage of First Nations women than of men in each age group reported having difficulty lifting or carrying 10 pounds. More First Nations women aged 55 or older also reported having a hard time climbing a flight of stairs than did men of the same age group. For details, see Table 14.A3 in the appendix.

Table 14.3. Type of Activity Limitation (among those with an activity limitation), by Age Group and Gender

Age and gender group	Type of limitation % [95% CI]					
	Seeing/reading newsprint	Hearing normal conversation	Having your speech understood	Lifting or carrying 10 lbs	Walking 5 minutes	Climbing flight of stairs
Male						
18-34	11.2 [5.9, 20.2]	6.5 [3.2, 12.8]	14.0 [8.7, 21.8]	16.6 [11.1, 24.1]	11.5 [7.0, 18.5]	13.4 [8.4, 20.7]
35-54	33.9 [26.3, 42.4]	18.3 [13.6, 24.2]	11.3 [7.6, 16.4]	39.5 [32.1, 47.3]	26.0 [19.0, 34.5]	38.8 [31.4, 46.7]
55+	40.9 [36.3, 45.7]	30.6 [25.9, 35.7]	14.3 [11.1, 18.2]	42.1 [37.0, 47.3]	39.4 [34.1, 45.0]	42.3 [37.4, 47.3]
Female						
18-34	20.0 [15.5, 25.3]	10.0 [7.2, 13.8]	7.8 [5.2, 11.5]	33.6 [27.5, 40.3]	16.8 [11.8, 23.2]	22.9 [16.8, 30.5]
35-54	31.2 [25.6, 37.5]	17.5 [12.8, 23.5]	7.2 [5.0, 10.3]	45.9 [38.5, 53.4]	26.4 [21.2, 32.3]	35.5 [29.3, 42.3]
55+	39.8 [35.7, 44.1]	25.1 [21.9, 28.7]	14.0 [11.5, 16.9]	60.8 [57.2, 64.4]	46.3 [42.2, 50.5]	62.6 [58.5, 66.5]
Overall						
18-34	16.2 [12.5, 20.7]	8.5 [6.3, 11.4]	10.5 [7.8, 14.0]	26.3 [21.8, 31.2]	14.5 [10.9, 19.0]	18.8 [12.4, 24.1]
35-54	32.6 [27.4, 38.1]	17.9 [14.3, 22.3]	9.3 [7.0, 12.1]	42.6 [37.2, 48.3]	26.2 [21.9, 31.0]	37.2 [32.2, 42.4]
55+	40.3 [37.0, 43.8]	27.6 [24.6, 30.9]	14.1 [12.2, 16.4]	52.2 [48.5, 55.8]	43.1 [39.6, 46.7]	53.2 [49.7, 56.7]
All ages (18-55)	31.6 [28.9, 34.4]	19.2 [17.0, 21.7]	11.2 [9.7, 12.8]	42.4 [39.4, 45.5]	29.5 [26.8, 32.4]	38.7 [35.9, 41.7]

Health utility index

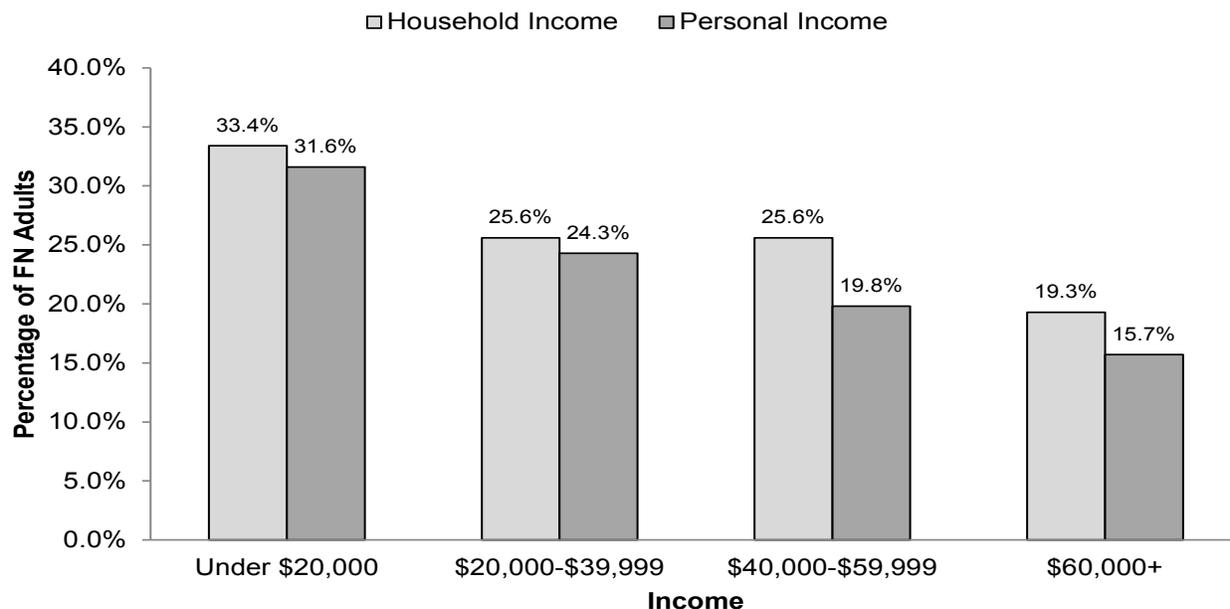
The HUI was used to create single-attribute scores for a series of health domains. Overall, pain scores were the lowest of the various attributes. Health utility scores decreased with age for vision, hearing, pain and ambulation. Dexterity did not begin to decrease until after age 55 years. Speech scores improved with age: scores being higher among those 55+ years compared to those 18-34 years. No age differences were observed in emotion or cognition. No gender differences were observed.

Covariates of activity limitation

Income and education. Activity limitation was linked to personal and household income (see Figure 14.6). The proportion of First Nations adults with the lowest personal income (under \$20,000 per year, including no income and income loss) reported twice as much activity limitation as those earning \$60,000 or more. Likewise, people living in the lowest-income households had a higher distribution of activity limitations than those living in the

highest-income households. There were no statistically significant differences based on level of education.

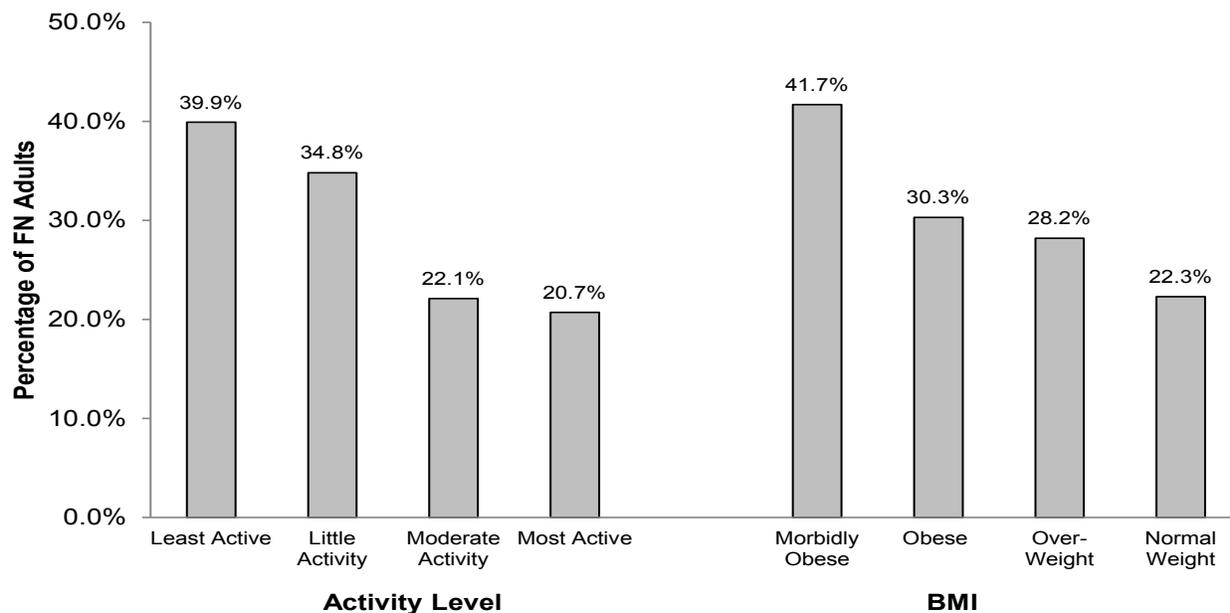
Figure 14.6. Percentage of First Nations Adults who reported Activity Limitations, by Personal and Household Income (n = 8,319 and n = 7,226)



Typical daily activity. A larger percentage of First Nations adults who were rarely active (spent most of the day sitting) or not very active (at least 30 minutes of physical activity once a week) during a typical week had an activity limitation (39.9% and 34.8%), compared to those who were moderately active (35 to 50 minutes a day in moderate activities) or very active (at least 60 minutes every day in moderate activities) (22.1% and 20.7%).

Body mass index. The percentage of First Nations adults reporting an activity limitation was higher among those who were overweight (28.2%), obese (30.3%), or morbidly obese (41.7%), compared to those who fall into the normal (22.3%) or underweight range (24.6%) (see Figure 14.7). Note. Normal weight is based on a body mass index from 18.5 to 24.9; overweight: 25 to 29.9; obese: 30 to 39.9; and morbidly obese: 40 or higher.

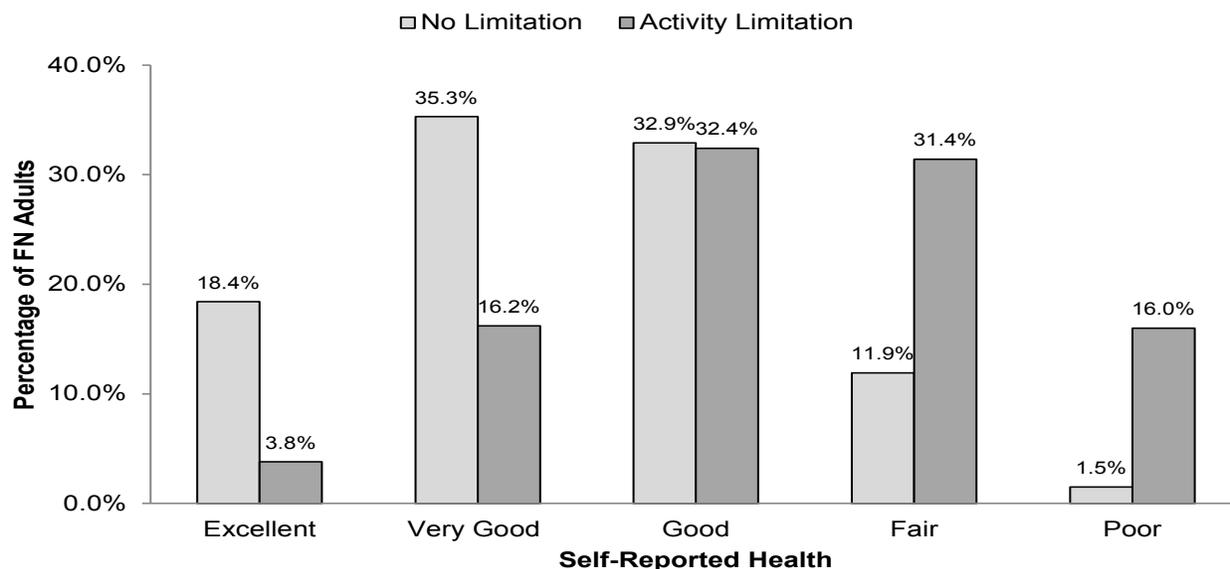
Figure 14.7. Percentage of First Nations Adults who reported Activity Limitations, by Typical Daily Activity and Body Mass Index (n = 10,072 and n = 10,040)



Chronic health conditions. The proportion of First Nations adults with an activity limitation was higher among adults with at least one health condition (40.2%, 95% CI [38.3, 42.1]) compared to those without a health condition (8.8%, 95% CI [7.6, 10.1]).

Self-reported health status. A higher proportion of those with an activity limitation reported “fair” or “poor health” compared to those without a limitation (see Figure 14.8).

Figure 14.8. Self-Reported General Health Status by Activity Limitation (n = 10,602)



DISCUSSION

Injury

Results from RHS 2008/10 indicated that one in five First Nations adults was injured in the 12 months prior to the survey. Although direct comparisons were not possible due to variations in the survey questions, the rate of injury appears to be lower than what was reported for a similar question in RHS 2002/03, yet still higher than the rate reported by all Canadians in 2009. This is consistent with past research that has demonstrated higher rates of injury and higher rates of mortality due to injury in First Nations communities than among the general Canadian population.

The high proportion of injury among First Nations adults translates to a substantial amount of suffering, disability, lost productivity, and other negative impacts. The RHS data point to a higher proportion of activity limitation, lower HUI scores, and increased likelihood to report deteriorated health for those who had been injured in the 12 months prior to the survey.

Falls or trips were the most frequently identified causes of injury, followed by overextension or strenuous movement,

assault (domestic, family, and other combined), accidental contact with another person or animal, and motor vehicle accident. Again, these results were somewhat consistent with past research showing that the most frequent causes of injury-related hospitalization among First Nations adults were falls, post-operative complications, suicide attempts, motor vehicle accidents, and assault (Turcotte et al., 2006), and that the most frequent causes of injury-related emergency department visits were falls, assault, motor vehicle accidents, suicide attempts, and poisonings (Alberta Centre for Injury Control & Research, 2005).

It is well established in past research, and the RHS 2008/10 results concur, that injuries disproportionately impact young men. The most common causes of injury, however, vary by age and gender. For example, men more often identified “contact with a machine, tool etc.” and “other physical assault.” Younger adults more often identified “other physical assault” and “accidental contact with another person or animal.” Older adults’ injuries were more often caused by a trip or fall, and those aged 40 to 49 years more often identified overextension or strenuous activity and motor vehicle accidents. The causes of injury among First Nations

adults therefore vary depending on the subgroup in question and must be explored and understood in a holistic fashion, rather than in an injury-specific way.

Specific subgroups experienced a greater number of injuries in the 12 months prior to the survey. First Nations adults with low personal and household incomes more often reported experiencing injury than those with high personal and household incomes. Alcohol or drugs were involved in almost one-third of all injuries and more than two-thirds of injuries from assault (domestic violence or other). In addition to the influence of alcohol and drugs on the specific injury events, heavy drinkers and cannabis users experienced a higher incidence of injury.

Multivariate analysis could help to clarify the impact of income and substance use on injury by specifically identifying whether age is a viable confound. In any case, the interactions between poverty, alcohol, and drugs, on the one hand, and violence and injury, on the other, are complex and must be explored in future research.

It is important to note that the impacts of historical trauma (colonization, residential schools, racism, isolation) are experienced in many ways, including high rates of injury from violence and other factors (Chandler & Lalonde, 1998; *The Healing Journey*, 2006; Wesley-Esquimaux & Smolewski, 2004).

Disability

A higher proportion of First Nations adults, especially those over the age of 45, experienced activity limitations compared to Canadians in general. More than one-quarter of all First Nations said that they were limited in the kinds or amounts of activities they could do because of a physical or mental condition. Common challenges included problems related to vision, such as reading; lifting or carrying weight; and physical exertion, such as climbing a flight of stairs without resting. Vision, hearing, ambulation, dexterity, and pain tended to worsen with age. Cognitive challenges, including memory, thinking, and problem solving, were most common among the youngest and oldest adults. Emotional challenges were distributed equally across age groups.

Interestingly, speech or being “able to be understood” was more of a challenge for young adults aged 18 to 39 years than for those aged 50 to 59 years. This unexpected result may relate to how respondents interpreted the question. Some may have understood it on a personal level (i.e., “Do people ‘get’ me and where I’m coming from?”) rather than simply whether their words were properly heard.

The rates of activity limitation among First Nations increased with age, affecting more than half of those aged 55 or over. Furthermore, the distribution of activity limitation was 1.6 times greater among adults who experienced an injury, and five times greater among adults with one or more health conditions. Not surprisingly, disability was associated with the presence of health conditions and injuries, indicating that the causes and consequences of disability are greatly connected to general health and well-being.

The main causes of activity limitation among First Nations adults living in First Nations communities are unclear from the RHS 2008/10 data alone. However, the results did indicate that disability was related to income, physical activity, and body mass index. From the literature, we know that the common health conditions underlying most disability are strongly influenced by age and socio-economic status, as well as modifiable risk factors including physical inactivity, overweight or obesity, alcohol, blood pressure, and smoking (Centers for Disease Control and Prevention, 2009; Rodgers, 2004; World Health Organization, 2009). As with injury, the root causes are complex and require future research.³

CONCLUSIONS

Possibilities for Future Research

Overall, the results of RHS 2008/10 provide a portrait of injury and disability rates on-reserve and in northern communities. They highlight group differences in injury and activity limitation and point to factors that are associated with disability and injury. Additional research would contribute to an increased understanding of injury and disability among First Nations adults.

First, more consistency between the RHS and the CCHS would provide a more precise understanding of how First Nations communities compare with Canadians overall. In particular, the primary injury questions asking participants whether they had been injured in the past 12 months should be harmonized. Additional divergent questions could be maintained to reflect the different priorities and realities pertaining to the two populations. Second, the RHS injury questions, which were partly modified between RHS 2002/03 and RHS 2008/10, should also be stabilized to allow for trending. Furthermore, our understanding of disability in First Nations community would benefit from an additional question that asks specifically about what respondents understand to be the cause of their activity limitation.

³ For examples, see http://www.preventconnect.org/wiki/index.php?title=River_Story

Future analysis of the RHS 2008/10 data should include multivariate analyses that would help to eliminate confounding variables and identify important associations. While still not able to disentangle causality or temporal sequence, multivariate analyses would help to more accurately characterize the links between injuries and disabilities on the one hand, and potential causes, groups at risk, and risk factors on the other.

Survey data is particularly useful in quantifying problems and trends, making comparisons, and identifying associations. The data help to answer the questions of what, who, how much, and, sometimes, when. Individual stories, qualitative research, and conceptual frameworks, such as the RHS Cultural Framework, the history of cultural trauma, and others, help to answer why.

Action

The tremendous burden of injury in First Nations communities demands concerted and renewed efforts at all levels, including by national policy-makers and leaders in and beyond First Nations communities. Strategies and resources targeting prevention and making use of local knowledge and best practices should be strengthened. Based on the RHS and published data, strategies should focus on the following:

- Trips and falls, particularly among older people
- Violence and assault (domestic, family, and other), towards both men and women
- Motor vehicle accidents
- Young men

Recognizing that the problem of injuries is, in part, a manifestation of more deeply rooted and complex issues means that prevention strategies must be holistic in approach and must address issues well beyond injury. Injury prevention strategies, especially those addressing violence, are incomplete if they do not address underlying issues (Injury Prevention Centre, 1995; McDonald, 2004). Working to tackle poverty, substance abuse, and historical trauma, among other things, is ultimately the key to reducing a significant part of the injury burden.

Prevention can happen through changes at three levels: the individual, the tools and equipment, and the broader context or environment. Working at only one level has less impact (Haddon, 1980). In addition to prevention, strategies to improve access to health care can help to limit the impact of injuries.

The burden of activity limitation on First Nations adults also calls for concerted efforts in prevention, as well as strategies for mitigation. Action is required at many levels. For First Nations who have disabilities, support, investment, and policy development is required to accomplish the following:

- Improve access to employment and enhance income
- Improve access to safe, affordable, non-institutional housing in individuals' own communities
- Improve accessibility and reduce barriers to inclusion in work, school, and social and cultural activities
- Improve access to personal support technologies (e.g., walkers, hearing aids, wheelchairs, technology) and environmental accommodations (e.g., wheelchair ramps, Braille signage, hand grabs)

Some of the changes required are within the scope of influence of First Nations leaders and local institutions, while others require work at other levels.

Because disability is caused, in large part, by chronic conditions, and chronic conditions are influenced, in large part, by socio-economic status and modifiable risk factors, prevention strategies must be holistic and upstream. Although a separate disability prevention strategy is not necessarily always appropriate, involvement of people with disabilities is critical to successful planning and strategy development.

Injuries and disabilities—most of which can be prevented—are all too common in First Nations communities. Strategies that result in even small decreases in the numbers would go a long way to improving health and well-being. The challenge is to approach the issues holistically.

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Chapter 15

Preventive Care

EXECUTIVE SUMMARY

This chapter presents findings from the First Nations Regional Health Survey (RHS) 2008/10 on preventative testing (i.e., blood pressure, blood sugar, cholesterol, vision/eye examinations, and complete physical examinations) and cancer screening (i.e., Pap tests, breast self-examinations, mammograms, and physical prostate checks) among First Nations adults living on-reserve and in northern communities.

With respect to improvements in secondary prevention screening prevalence, compared to the previous RHS (2002/03), First Nations adults were more likely to have undergone blood sugar testing and vision/eye examinations. Results also revealed that First Nations females' participation in mammograms has increased since the 2002/03 RHS, and that the majority of First Nations females met recommended Canadian guidelines for Pap smear testing.

Despite these successes, there is still room for improvement; for instance, First Nations males were much less likely than those in the general Canadian population to undergo a physical prostate check (rectal exam or prostate-specific antigen blood test). In addition, although rates of mammograms among First Nations females have increased, they still lag behind those observed in the general Canadian population. Finally, prevalence of routine physical examinations has decreased since the previous RHS. Results suggest the need for increased testing among specific factions of the First Nations population: First Nations males and younger First Nations adults are less likely to undergo screening. Implications of results are discussed.

KEY FINDINGS

- On average, approximately three quarters of First Nations adults (76.9%) had undergone a form of routine test or examination within the 12 months prior to the survey.
- In order from highest to lowest, First Nations adults had undergone testing for blood pressure (63.9%), blood sugar (54.3%), vision or eye exam (54.1%), complete physical examinations, (40.6%) and cholesterol (38.1%) in the 12 months prior to the survey.
- More First Nations females than males had undergone testing for blood sugar, vision or eye exams, complete physical examinations, and cholesterol in the previous 12 months.
- Participation in specific testing and screening by First Nations adults increased with age.
- Two-thirds (60%) of First Nations women aged 18 years or older had performed a BSE in their lifetime.
- Approximately two-fifths (41%) of First Nations women aged 18 years or older have had a mammogram in their lifetime.
- Approximately three-fifths of First Nations women aged 50-59 (60.2%) and aged 60+ (61.6%) reported having a mammogram within the past 3 years.
- 90.3% of First Nations women aged 18 years or older reported ever having a Pap test. First Nations women's reported rates of Pap smear testing are similar to that of women within the general Canadian population – irrespective of age.
- The rate of First Nations women who have had a Pap test in the last 3 years (74.0%) was comparable to that of females in the general Canadian population (72.8%).
- Over the last five years prevalence of Pap smear testing among First Nations women has remained similar to that of women in the general Canadian population.
- 23.4% of First Nations males aged 18 years or older reported having had a rectal exam (RE) or a prostate-specific antigen blood test (PSA). There is an increase in the frequency of RE/PSA testing by First Nations men as they get older.
- 44.1% of First Nations men aged 50 to 59 years, and 52.8% of First Nations men aged 60 years or older indicated they have had a RE.

INTRODUCTION

An accelerated rate of acculturation during the past 30 years for First Nations in Canada has likely contributed to a higher prevalence of obesity, daily smoking, and sedentary lifestyle, compared to that of other Canadians (Cobb & Paisano, 1998; Smeja & Brassard, 2000; Sarkar, Lix, Bruce, & Young, 2010). These changes in lifestyle are associated with an increase in debilitating, degenerative, and chronic illnesses. For example, almost one-third of Aboriginal people over the age of 15 report that they have been told by a health practitioner that they have a chronic health condition (MacMillan, MacMillan, Offord, & Dingle, 1996). Studies have revealed that First Nation populations in Canada bear a disproportionately higher burden of some chronic illnesses than other Canadians (Reading, 2009). Marks, Cargo, and Daniel (2007) point in particular to type 2 diabetes, cardiovascular disease, high blood pressure, lipid disorders, obesity, and metabolic syndrome. The top five most widely reported conditions among First Nations adults in RHS 2002/03 were arthritis and rheumatism, allergies, high blood pressure, diabetes, and chronic back pain (First Nations Information Governance Committee [FNICG], 2005), conditions that are also prevalent in the general Canadian adult population. Inadequate clinical care and health promotion as well as poor disease prevention services have been cited as frequent and major contributors to the suboptimal health status of First Nations people (Huffman & Galloway, 2010).

“Prevention” refers to policies and actions to eliminate a disease or to minimize its effect; to reduce the incidence or prevalence of disease, disability, and premature death; to reduce the prevalence of disease precursors and risk factors in the population; and, if none of these is feasible, to retard the progress of the incurable disease (Last, 2007). Primary prevention includes protection from the effects of exposure to a disease agent, such as vaccination against infectious pathogens, while secondary prevention includes the use of screening tests or other suitable procedures to detect serious disease as early as possible so that its progress can be arrested and, if possible, the disease eradicated. Examples of screening tests include mammograms, Pap tests, and blood sugar tests (Last, 2007).

Documenting First Nations’ participation in secondary preventive activities is important for informing better clinical care, health promotion, and prevention initiatives to improve health outcomes related to chronic health conditions. Information from the literature, in particular results from RHS 2002/03, provides an understanding of First Nations adults’ engagement with secondary

prevention. Data collected in RHS 2002/03 suggested that high blood pressure, also known as hypertension, which can cause stroke, heart attack, and heart and kidney failure, is somewhat more prevalent among First Nations adults than it is among the general population (20.4% vs. 16.4%). These findings also indicated that prevalence of high blood pressure among First Nations adults increases with age (FNIGC, 2005). Health Canada (2005) reported that First Nations living on-reserve are at higher risk of mortality by heart attack, with a documented age-standardized rate of 72.7 per 100,000 (on-reserve, 2001) compared to 52.1 per 100,000 for all Canadians (2000), suggesting an earlier age of onset. Proper diagnosis and treatment of high blood pressure cuts the risk of stroke by up to 40% and heart attack by up to 25% (Heart and Stroke Foundation, 2011).

The rate of diabetes in the First Nations population is three to five times higher than that in the general Canadian population (Ho, Gittelsohn, Harris, & Ford, 2006). Increasing rates of diabetes parallel an epidemic of overweight and obesity that has coincided with socio-cultural disruption and the loss of traditional lifestyles (Dyck, Osgood, Lin, Gao, & Stang, 2010). Among First Nations people, diabetes is a disease of young adults, but of young women more often than of young men. In contrast, among the general Canadian population, diabetes is a disease of aging adults that is more common among men than among women (Dyck et al., 2010). Blood sugar testing is key in screening for diabetes mellitus and is essential for all people with diabetes. In RHS 2002/03, 19.7% of First Nations adults reported having been diagnosed with diabetes. Most (78.2%) of them had type 2 diabetes; 9.9% had type 1 diabetes; and 9.8% reported having been told they were in a pre-diabetes state. In addition, one in eight First Nations women (11.9%) reported having gestational diabetes. Diabetes is chronic, debilitating, and costly (Daniel et al., 1999). Although no cure exists for diabetes, the disease and its complications can be prevented, delayed, and managed by identifying risk factors for detecting the condition at an early age (Ley et al., 2009). According to the International Diabetes Federation, 74% of people who have diabetes for 10 years or more will develop some form of diabetic retinopathy (Chris, 2009).

A comprehensive eye examination can detect early signs of potentially blinding eye conditions such as glaucoma, age-related macular degeneration, and high blood pressure. According to the Canadian Ophthalmological Society (2009), frequency of testing should increase with age and should occur twice a year for individuals 65 years or over. In RHS 2002/03, 3.6% of First Nations adults

aged 18 years or older reported blindness or serious vision problems that cannot be corrected with glasses, 4.2% had cataracts, and 1.6% had glaucoma (95% CIs [± 0.4], [± 0.4], and [± 0.4], respectively). Vision or eye exams are an essential step in maintaining and restoring clear vision.

In RHS 2002/03, low participation rates were noted in both complete physical examinations and cholesterol testing. Complete physical examinations increase the likelihood of individuals' undergoing other health screening tests. For example, after completing full physical examinations and a series of specific tests on First Nations individuals with type 2 diabetes in Alberta, medical researchers found that a considerable number of participants had undiagnosed complications of diabetes: 23% had kidney damage; 22% had high cholesterol; 11% had foot complications; 9% had hypertension; and 7% had retinopathy (Oster, Virani, Strong, Shade, & Toth, 2009). While this example is specific to First Nations people diagnosed with diabetes, it provides evidence for, and highlights, how complete physical examinations can aid in determining correct diagnosis, which can lead to a treatment plan to produce better health outcomes.

The rate of heart disease is 1.5 times higher among First Nations than other Canadians and is the number one cause of mortality (Health Canada, 2001). High blood cholesterol is one of the factors contributing to coronary heart disease. In RHS 2002/03, self-reported results indicated that First Nations' participation in cholesterol testing in the 12 months prior to that survey was lower than for all other tests. Within the general Canadian population, 47% of adults aged 40 to 59 years had high levels of total cholesterol, which is a measure of all cholesterol and other types of fats in the blood (Canadian Cardiovascular Society, 2010). Regular screenings are a protective measure for detection and management of heart disease. Cholesterol screening is recommended for individuals at higher risks every one to three years (Canadian Cardiovascular Society, 2009). This includes men who are 40 years of age or older and women who are 50 years of age or older.

Cancer is a significant cause of illness and the third leading cause of death in First Nation populations (following heart disease and motor vehicle accidents; Marrett & Chaudhry, 2003). Survival rates among First Nations are lower than average because cancers do not tend to be diagnosed until more advanced stages (Alberta Cancer Board, 2007). Many cancers are preventable or treatable in their early stages. At present, information on the current status of cancer screening among First Nations populations is lacking, primarily because no health surveillance system

captures information on ethnicity in Canada. However, all of the research studies that have been done on this topic point in the same direction: despite improvements in some areas, First Nations' access to screening services still lags behind that of the general Canadian population (Assembly of First Nations [AFN], 2009).

Although findings from RHS 2002/03 that indicate lower access by First Nations people to cancer screening services are concerning (AFN, 2009), participation in some screening activities, such as First Nations women's participation in Pap smear testing, was encouraging. Overall, in RHS 2002/03 First Nations women reported similar levels of cervical screening (76%) as other women in Canada; and only one in nine eligible said they had never had a Pap test—the same level as in the general population. In Canada the targeted participation rate for Pap smear testing is 85% (AFN, 2009), and so it might appear that the gap is closing between First Nations women and the general Canadian population. However, in its review of First Nations women's rates of participation in cervical screening, the Assembly of First Nations references studies both earlier than and at the same time as RHS 2002/03, in which First Nations women's participation rates were lower by about 30% than those of other Canadian women (AFN, 2009). Similar results were obtained from a public opinion poll conducted in 2002 by the National Aboriginal Health Organization (NAHO), where 50% of First Nations respondents had had a Pap test in the year prior to the poll. The Pap test is one of the most effective and successful methods of cervical cancer prevention and early intervention. Increased participation in Pap smear testing can reduce the higher incidence of and mortality from cancer of the cervix that has been observed among some groups of First Nations women (Waldrum, Herring, & Young, 1995).

The incidence of breast cancer is lower among First Nations women than among women in the general Canadian population. However, when First Nation women are diagnosed, they are more likely than other Canadian women to have been diagnosed with breast cancer at an advanced stage (Tatemichi, Miedema, & Leighton, 2002). Despite lower rates, breast cancer is the most common form of cancer among First Nation females, accounting for about one-fifth of incident cancers (Cobb & Paisano, 1998; Smeja & Brassard, 2000). In 2007, the Canadian Cancer Society stopped recommending that women employ breast self-examinations (BSE) as a method to screen for breast abnormalities. On the other hand, mammograms are now promoted as being more effective; recent research revealed that 85% of cancers are detected by mammography and 26% by BSE

(Canadian Cancer Society, 2009). The Canadian Cancer Society advises that for women between the ages of 40 and 69 years, clinical examinations and mammograms are the best ways to detect breast cancer in the crucial early stages. The Canadian Cancer Society (2011) has reported that women in their 40s should consider having a mammogram every year, while women 50-59 years should have a breast exam once every 2 years. Earlier stage breast cancers are associated with five-year survival rates of greater than 90% (Mai, Sullivan, & Chiarelli, 2009).

In Canada, prostate cancer is the most common male malignancy and the third most common cause of cancer death in males (Nam & Klotz, 2009). Although a review of the literature consistently highlighted that prostate cancer is among the top three cancers diagnosed among First Nations males, there is a serious gap in the literature regarding up-to-date information on prostate screening, incidence, and mortality. This gap in information makes it difficult to compare and contrast findings between the males in the general Canadian population and males in the First Nations population. In 2001, Health Canada reported a higher mortality rate for prostate cancer among First Nations men living in First Nations communities compared to men in the general Canadian population (Assembly of First Nations, 2009). A report on cancer incidence and mortality among Ontario First Nations from 1968 to 1991 showed that prostate cancer was the number one diagnosed cancer of First Nations men (Marrett & Chaudhry, 2003). In 2007, according to Statistics Canada (2010a), 23,181 Canadian men were diagnosed with prostate cancer. Prostate cancer accounts for about 11% of all cancer deaths of men. One in seven men is expected to develop prostate cancer during their lifetime, mostly after 60 years of age. Prostate cancer can be detected early using a prostate-specific antigen test and a physical prostate check—a rectal exam—but it is not clear whether this earlier detection and consequent earlier treatment leads to any change in the natural history and outcome of the disease (National Cancer Institute, 2011).

In sum, for the most part, First Nations adults do appear to engage in lower rates of secondary prevention screening – which is generally reflected in higher rates of chronic illness. The current chapter presents recent self-report data on First Nations engagement in screening activities. The monitoring of secondary preventive activities and cancer screening is essential as this information can help to highlight areas in need of heightened clinical care, health promotion efforts, and prevention initiatives.

METHODS

First Nations adults 18+ years were asked whether they had had a cholesterol test, a vision/eye exam, a blood pressure test, a blood sugar test, or a complete physical examination in the past 12 months. Female adults also were asked: how often they perform a breast self-examination (response options: about once per month, about every 2-3 months, less often than every 2-3 months, or never), and how long since their last mammogram PAP smear (response options: less than 6 months ago, 6 months to less than 1 year ago, 1 year to less than 3 years ago, 3 year to less than 5 years ago, more than 5 years ago, or never). Male adults were asked if they had ever had (yes/no) a prostate check (rectal exam [RE]) or a prostate-specific antigen blood test [PSA].

Current findings are compared to those of the previous RHS (2002/03; FNIGC, 2005), the 2002 National Public Opinion Poll on Aboriginal Health and Health Care in Canada (National Aboriginal Health Organization, NAHO), and, where applicable, to the Canadian Community Health Survey (CCHS).

RESULTS

Specific Health Screening and Testing in the 12 Months prior to RHS 2008/10

Just over three-quarters (76.9%, 95% CI [\pm 1.3]) of First Nations adults in RHS 2008/10 reported that they had undergone some routine tests or examinations in the 12 months prior to the survey

Table 15.1 shows the participation rates of First Nations adults in specific health screening tests for 2008/10. The most commonly undergone test was for blood pressure (63.9%), followed by blood sugar (54.3%), and vision or eye exam (54.1%). Complete physical examinations (40.6%) and cholesterol testing (38.1%) were the least common.

Table 15.1. Utilization of Selected Health Screening Tests in the Past 12 Months

Test or examination	%	95% CI
Blood pressure (n = 10,603)	63.9	[\pm 1.5]
Blood sugar (n = 10,511)	54.3	[\pm 1.5]
Vision or eye (n = 10, 435)	54.1	[\pm 1.6]
Complete physical examination (n - 10,449)	40.6	[\pm 1.7]
Cholesterol (n = 10, 435)	38.1	[\pm 1.6]

Table 15.2. Proportion of First Nations Adults' Utilization of Selected Health Screening Tests in the 12 Months prior to RHS 2008/10

Cholesterol Test, % [95% CI]						
	Overall	18-29	30-39	40-49	50-59	60+
Male	34.2 [31.9, 36.5]	13.0 [10.3, 16.3]	27.6 [23.4, 32.1]	37.0 [32.5, 41.7]	57.1 [51.8, 62.2]	62.3 [58.4, 66.1]
Female	42.2 [40.2, 44.3]	17.2 [14.6, 20.1]	39.3 [33.8, 45.1]	47.3 [43.3, 51.4]	64.9 [60.7, 68.9]	65.2 [62.1, 68.1]
Vision or Eye Exam, % [95% CI]						
	Overall	18-29	30-39	40-49	50-59	60+
Male	48.9 [44.2, 46.9]	40.1 [36.1, 44.2]	40.9 [36.7, 45.3]	51.7 [47.0, 56.4]	59.4 [53.6, 64.9]	64.5 [60.3, 68.5]
Female	59.3 [57.5, 61.2]	48.5 [44.7, 52.3]	57.2 [52.1, 62.1]	60.8 [56.8, 64.6]	68.4 [65.1, 71.5]	72.9 [70.2, 75.4]
Blood Pressure Test, % [95 CI]						
	Overall	18-29	30-39	40-49	50-59	60+
Male	59.5 [57.1, 61.9]	39.6 [35.6, 43.9]	50.8 [46.4, 55.3]	68.1 [63.6, 72.2]	77.2 [72.9, 81.0]	83.9 [80.9, 86.5]
Female	68.3 [66.6, 70.0]	53.8 [50.3, 57.3]	62.9 [58.0, 67.6]	70.9 [67.2, 74.4]	81.3 [77.4, 84.6]	88.4 [86.4, 90.1]
Blood Sugar Test, % [95% CI]						
	Overall	18-29	30-39	40-49	50-59	60+
Male	48.4 [46.0, 50.7]	26.6 [23.4, 30.1]	42.4 [37.9, 46.7]	55.2 [50.3, 60.1]	67.1 [62.2, 71.7]	74.8 71.1, 78.2
Female	60.4 [58.6, 62.2]	42.8 [39.5, 46.2]	55.9 [50.8, 60.9]	63.6 [59.7, 67.4]	75.3 [71.6, 78.5]	82.1 79.5, 84.5
Complete Physical Exam, % [95% CI]						
	Overall	18-29	30-39	40-49	50-59	60+
Male	35.4 [33.0, 38.0]	21.3 [17.9, 25.2]	30.6 [26.5, 35.0]	39.3 [34.5, 44.2]	48.3 [43.5, 53.2]	54.8 50.6, 58.9
Female	45.9 [43.7, 48.1]	36.0 [32.4, 39.7]	46.0 [40.9, 51.1]	48.5 [44.5, 52.5]	54.4 [49.8, 59.0]	52.9 [49.3, 56.5]

Blood pressure

Findings from the public opinion poll conducted by NAHO in 2002 and the findings of RHS 2002/03 both revealed that the most common screening test was for blood pressure. This is consistent with results from the current RHS.

There is a notable discrepancy between First Nations and the general Canadian population in blood pressure testing. According to Statistics Canada (2010c), in 2008, 16.4% of Canadians aged 12 years or older reported that they had high blood pressure. In comparison, current RHS findings indicate that 21.8% (95% CI $[\pm 1.2]$) of First Nations adults have been told they have high blood pressure.

Blood sugar

Blood sugar testing was the next most common type of testing for First Nations adults in RHS 2008/10 (54.3%, 95% CI $[\pm 1.5]$; see Table 15.2). In its 2002 public opinion

poll, NAHO reported a 56% participation rate (NAHO, 2003) – suggesting comparable percentages of testing.

Overall, there was no noticeable change across age or gender groups in participation rates for blood sugar screening from RHS 2002/03 to RHS 2008/10.

Vision test or eye examination

More than half (54.1%, 95% CI $[\pm 1.6]$) of First Nations adults living in First Nations communities reported having undergone a vision or eye exam. This was comparable to the 54% of respondents who reported having had an eye exam in the NAHO survey (NAHO, 2003). A greater proportion of women than men (59.3% vs. 48.8%, 95% CIs $[\pm 1.9]$ and $[\pm 2.4]$, respectively) reported having a vision or eye exam during the 12 months prior to RHS 2008/10. For both women and men, utilization rates were much higher starting at age 50 years. Of those aged 60 years or older, the majority

(68.9%, 95% CI [± 2.3]) reported having had a vision or eye exam in the 12 months prior to the survey.

Complete physical examination

Overall, four in 10 First Nations adults (40.6%, 95% CI [± 1.7]) aged 18 years or older reported having had a complete physical examination in the year prior to the survey. A greater proportion of women than of men (45.8% vs. 35.4%, 95% CIs [± 2.2] and [± 2.5]) reported having had a complete physical examination.

Since the previous RHS 2002/03, percentages of adults receiving complete physical examinations have decreased. For example, in 2002/03 34.3% of 18-29 years olds had undergone a physical examination in the past year, compared to 28.4% in 2008/10. Similarly, 61.2% of First Nations adults 60 years and older reported a past year physical exam in the 2002/03 RHS, compared to and 53.8% of those aged 60 years or older in the RHS 2008/10.

Cholesterol

Similar to RHS 2002/03, in RHS 2008/10 cholesterol testing was the test First Nations adults were least likely to have undergone in the year prior to the survey (38.1%, 95% CI [± 1.6]). NAHO (2003) reported a similar finding; 39% of respondents had had a cholesterol test in the previous 12 months.

In RHS 2008/10, about 42.2% (95% CI [± 2.0]) of First Nations women and 34.2% (95% CI [± 2.3]) of men had their cholesterol levels tested within the previous 12 months.

No statistical differences were observed in cholesterol testing between 2002/03 and 2008/10.

Cancer Screening and Prevention

First Nations women were asked whether they had ever had a Pap test, mammogram, or performed a breast self-exam (BSE). Results indicated that 90.3% had a Pap test, 60% had performed a BSE, and 41% had a mammogram in their lifetime (see Table 15.3).

Men were asked whether they had ever had a rectal exam (RE) or a prostate specific test (PSA). One-quarter of First Nations men (23.4%) had had a RE or a PSA test (see Table 15.3).

Table 15.3. Proportion of First Nations Adults “Ever” Undergoing any Cancer Screening Tests

Test	Female	Male
Pap test (<i>n</i> = 5,252)	90.3 [± 1.2]	N/A
BSE (<i>n</i> = 5,204)	60.0 [± 2.1]	N/A
Mammogram (<i>n</i> = 5,415)	41.0 [± 1.8]	N/A
RE or PSA test (<i>n</i> = 4,575)	N/A	23.4 [± 2.0]

Pap test

The majority (74%) of First Nations women met the recommended Canadian screening guidelines for Pap testing for once every 3 years (Canadian Cancer Society, 2010; see Table 15.4). No change was observed in the proportion of females meeting Pap test guidelines since the previous RHS (75.6%; FNIGC, 2005). The proportion of First Nations females having undergone a Pap test in the past 3 years (or less) was comparable to that observed in the general Canadian population (72.7%; Statistics Canada, 2006)¹.

Table 15.4. Proportion of First Nations Women, by Last Instance of Pap Test

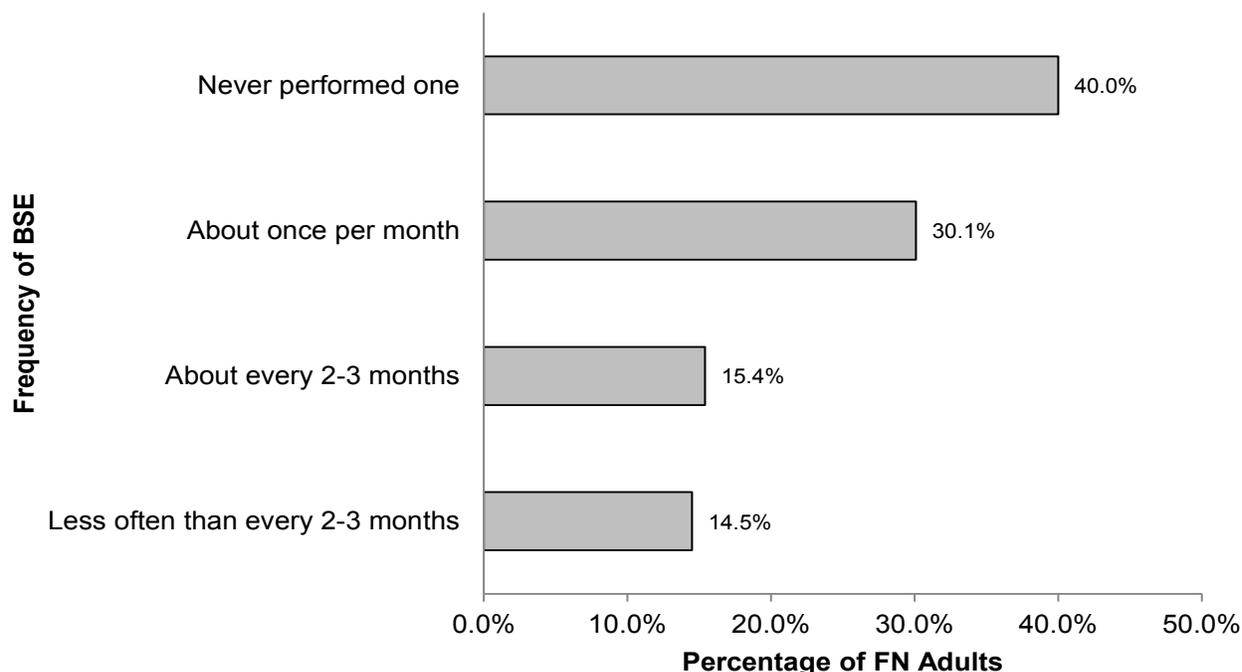
Previous Pap Test	RHS 2002/03 (18+ years)	RHS 2008/10 (18+ years)
< 1 year ago	48.2 [± 2.2]	48.9 [± 2.0]
1 - 3 years ago	27.4 [± 1.7]	25.1 [± 1.9]
> 3 years ago	13.8 [± 1.4]	16.3 [± 1.4]
Never	10.6 [± 1.4]	9.7 [± 1.2]

Breast self-examination

Figure 15.1 reveals that 60% of First Nations women have performed a BSE in their lifetimes. Compared to the previous RHS (2002/3), more First Nations women are engaging in BSE (an increase of 4%) and engaging in BSE more frequently.

¹ Canadian estimate is for females 18-69 years, whereas the RHS estimates are based on females 18+ year of age. Additionally, those who did not answer the Pap test question (‘don’t know’ or ‘refused’) were excluded when calculating estimates of frequency in the RHS (2002/03 and 2008/10), but were included in Statistics Canada estimates (2.2% did not answer). Due to this, comparisons of Pap test estimates between the general Canadian population and the RHS data should be interpreted with caution (see Statistics Canada, 2006, Table 105-4042).

Figure 15.1. Last Breast Self-Exam among First Nations Women, RHS 2008/10 (n = 5,204)



Mammogram

Approximately two-thirds of First Nations women aged 50-59 years (60.2%) and aged 60+ years (61.3%) reported having a mammogram within the three years prior to the survey (see Table 15.5). In comparison, data from the CCHS show that in 2008, 72.0% of Canadian women aged 50 to 69 years reported having had a mammogram in the past two years (Sheilds & Wilkins, 2009).

Although the difference in participation rates between First Nations and the general Canadian population range from about 10% to 12%, there is some evidence that since RHS 2002/03 the overall participation rates for First Nations women have improved. For instance, in RHS 2008/10, 82.4% of First Nations women aged 60 years or older reported having had a mammogram in their lifetime, compared to 71% in RHS 2002/03.

Table 15.5. Proportion of First Nations Women Ever Undergoing a Mammogram

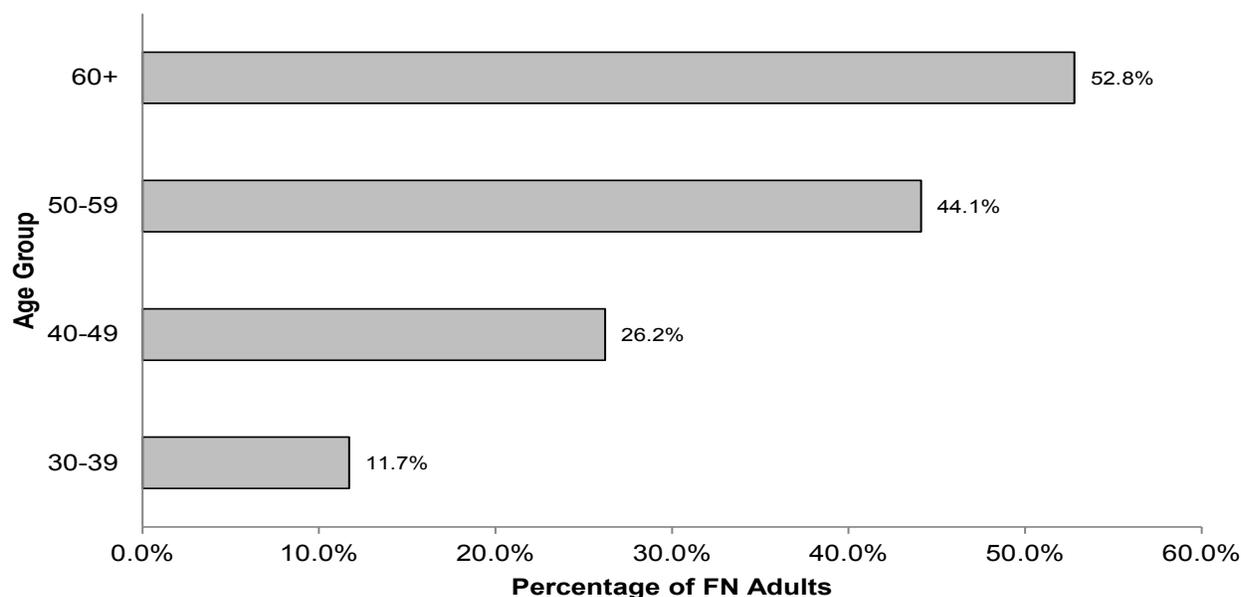
Last instance	All ages (n = 5,415) % [95%CI]	50-59 years (n = 1,035) % [95%CI]	60+ years (n = 1,300) % [95%CI]
Never	59.0 [±1.8]	25.7 [±3.9]	17.9 [±2.5]
Less than 6 months ago	7.8 [±1.0]	15.6 [±3.3]	13.8 [±2.7]
6 months to less than 1 year ago	9.8 [±0.8]	20.8 [±2.7]	19.8 [±2.9]
1 year to less than 3 years ago	13.2 [±1.2]	23.8 [±2.9]	27.7 [±3.5]
3 years to less than 5 years ago	5.2 [±1.2]	6.8 [±1.6]	9.4 [±1.7]
More than 5 years ago	5.0 [±0.8]	7.4 [±2.3]	11.3 [±1.7]

Physical prostate test

Depending on the province, 35% to 75% of men aged 50 to 75 years in the general Canadian population have had at least one prostate-specific antigen blood test (Canadian Partnership Against Cancer, 2009). In RHS 2008/10, 23.4%

(95% CI [± 2.0]) of First Nations men reported having had either a rectal exam or a prostate-specific antigen blood test at some point in their lifetime (see Table 15.3). The proportion of First Nations men who have had at least one of these tests increased with age (see Figure 15.2).

Figure 15.2. Proportion of First Nations Men who have had a RE or a PSA Test, by Age, RHS 2008/10



DISCUSSION

Since the previous RHS, both improvements and deterioration in prevalence of specific secondary prevention testing and cancer screening were observed.

For the most part, the prevalence of First Nations adults having undergone routine physical examinations in the past 12 months has decreased (with the exception of those 50-59 years of age). For example, 34% of adults 18-29 years reported having undergone a physical exam in the 2002/03 RHS compared to 28% of adults of the same age in 2008/10. Routine physical examinations are of great importance as they help to pinpoint possible problems, leading to more specific screening tests, and optimally, treatment at earlier stages of illness/disease. In contrast to the decreases observed in physical exams, prevalence of blood sugar and vision/eye exams have increased since the previous RHS – suggesting that First Nations adults are experiencing fewer barriers to accessing these forms of treatment.

Of the secondary prevention screening tests, First Nations adults were most likely to have undergone blood pressure

testing (approximately 60% of adults) and least likely to have undergone cholesterol testing (38%). No change in prevalence of either blood pressure testing or cholesterol testing was observed since the previous RHS. Because high cholesterol and high blood pressure are linked with severe, life threatening, and chronic health condition – many of which are already prevalent among First Nation adults - intervention programming aimed at increasing the prevalence of these types of screening should be further encouraged. Early identification and treatment of high blood pressure and cholesterol is likely to curtail the development of more severe health repercussions.

In terms of routine preventative screening, females were more likely to have undergone screening compared to their male counterparts. This result may be interpreted in a number of ways. For example, females may be more health conscious – and thus, are more likely to seek out prevention screening. On the other hand, previous research has revealed that First Nations females appear have more health problems (vs. males), and thus, may be in greater need of various health tests (FNIGC, 2005). Another possible explanation is that (for whatever reason) males experience more barriers in accessing prevention

screening. This finding may be a topic for future research. Nonetheless, intervention work should aim to increase screening prevalence among First Nations males.

Gender specific cancer screening tests were also examined. The Canadian Cancer Society (2007) recommends that females undergo a Pap test once every 1 to 3 years for optimal cancer screening. Data reveal positive findings with regard to Pap tests among First Nation females; approximately three-quarters (74%) reported having undergone a Pap test in the past 3 years. This statistic is comparable to that observed among females in the general Canadian population. In addition, no decline in testing was observed since the previous RHS.

Since the previous RHS (2002/03), females were more likely to perform a BSE and to perform BSE more often. Despite this increase in BSE, recent research has revealed that BSE are not as effective as mammograms for cancer screening. Currently, lifetime prevalence of mammograms among First Nation females lags behind that of females in the general Canadian population (62% vs. 72%). However, on a positive note, results suggest that, since the previous RHS, prevalence of mammograms among First Nations females is on the rise. As an aside, future waves of the RHS may consider altering question wording in order to assess the proportion of First Nation females meeting recommended guidelines for frequency of mammograms (i.e., the RHS currently asks about mammograms in the past 1-3 years, whereas mammograms are recommended every 2 years – at least for those 50 to 69 years of age; Canadian Cancer Society, 2011).

Change in prevalence of prostate testing in between the 2002/03 RHS and the 2008/10 RHS could not be assessed due to variation in question wording. The previous RHS (2002/03) asked whether males have undergone a rectal exam, whereas the current RHS (2008/10) assesses whether males have undergone either a rectal exam or a prostate-specific antigen blood test (leaving more room for an affirmative response). Irrespective of this discrepancy in question wording, First Nation males are significantly less likely to have undergone a prostate check compared to males in the general population (23% vs. 35% or greater).

Since the majority of the First Nations population is below 30 years, the focus of many health programs tends to be on younger people (Assembly of First Nations, 2009). However, the current RHS findings revealed that young adults had the lowest participation rates in secondary prevention testing. Thus, in addition to focusing on more youth-specific testing (e.g., testing for sexually transmitted infection or pregnancy), health programs may need to

encourage young adults to participate in regular testing in order to prevent chronic illness from developing farther along in life (e.g., cholesterol, blood pressure tests),

In terms of increasing participation in screening (more generally), interventions should build on the strengths and attributes of existing First Nations health services. A one-size-fits-all approach may not be as successful as working with individual communities to develop, implement, and test the effectiveness of secondary prevention initiatives.

CONCLUSIONS

The survey results presented in this chapter describe rates of secondary prevention and cancer screening among First Nations adults living on-reserve and in northern communities. Results from RHS 2008/10 reveal a number of positive findings. With respect to routine secondary prevention screening, compared to the previous RHS, First Nations adults are more likely to have undergone blood sugar testing and vision/eye examinations in the past year. With respect to improvements in cancer screening: the majority of First Nations females are meeting recommended guidelines for Pap smear testing (rates that are comparable to those observed in the general Canadian population) and First Nations females' participation in mammograms has increased since the 2002/03 RHS.

Despite these successes, improvements are still needed. For instance, First Nations males are much less likely than those in the general Canadian population to undergo a physical prostate check (rectal exam or prostate-specific antigen blood tests). In addition, although rates of mammograms among First Nations females have increased, they still lag behind those observed in the general Canadian population. Finally, prevalence of physical examinations has decreased since the previous RHS, and no increase was observed in cholesterol or blood pressure testing; increases in these forms of screening are essential for identifying and arresting the development of chronic disease among First Nations adults. Results also suggest the need for increased testing among specific factions of the First Nations population; First Nations males and younger First Nations adults are less likely to undergo screening.

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Chapter 16

Community Wellness

EXECUTIVE SUMMARY

An overview of First Nations theories of wellness shows that a healthy person is one who maintains balance with his or her environment. The First Nations Regional Health Survey (RHS) 2008/10 integrated this concept of health by including a section on community wellness. Measures of community wellness are rarely found in population health surveys; therefore, the RHS is unique in this respect. The data presented in this chapter provide an informative portrait of how First Nations adults living on-reserve and in northern communities evaluate the quality of life within their communities (e.g., education and training opportunities, alcohol and drug abuse, housing, culture, gang activity, health, employment).

First Nations adults identified family values (61.6%) and elders (41.7%) as strengths in their communities. In contrast, few adults identified 'a strong economy' as being a community strength (10.8%). With respect to perception of progress and improvement of community variable, little change was observed (among those who perceived challenges to the community), especially for gang activity and alcohol and drug abuse. The associations between perceptions of community wellness and measures of individual wellness are also explored.

KEY FINDINGS

- A high prevalence of First Nations adults observed challenges within their community. The most commonly identified were alcohol and drug abuse (82.6%), housing (70.7%), and employment/number of jobs (65.9%).
- Of those who identified these community challenges, two-thirds (or more) of First Nations adults perceived no improvement or worsening of all 10 possible community challenges listed (i.e., education and training, alcohol and drug abuse, housing, culture, natural environment/resources, health, funding, control over decisions, gang activity, employment/number of jobs).
 - Community gang activity and alcohol and drug abuse were perceived as having made the least progress.
- Family values were perceived as the core of community life, with 61.6% of First Nations adults naming this as a community strength, followed by elders (41.7%) and traditional ceremonial activities, such as powwows (37.8%).
 - ‘Strong economy’ and ‘strong community leadership’ were the least likely to be identified as strengths.
- With respect to participation in community cultural events, two-thirds of First Nations adults reported participating at least “sometimes”.

INTRODUCTION

Community Wellness and Well-being

For First Nations, community wellness is an important aspect of health – an essential component in the medicine wheel. The presence of wellness in the community suggests a balance between the person and his/her environment (Mazzola, 1988).

The idea that community wellness is an important determinant of mental health was proposed very early on in scientific literature. One of the pioneers in this field was Leighton (1959), who revealed how the morale of a village significantly influenced its members and outlined various aspects of community life that have an impact on emotional balance. Leighton's seminal ideas have only recently been revisited.

In the field of community psychology, Bronfenbrenner (1979) proposed an ecological model of behaviour that had many similarities with a First Nations approach. This model presents the person as the centre of multiple environmental influences, including those that are proximal (e.g., family) and those that are more remote determinants (e.g., government policies).

The proposition that health is directly influenced by ecological factors has been supported by fieldwork among the Plains Cree of Saskatchewan. A survey revealed that respondents identified such elements as a clean environment, a society free from racism, the presence of political autonomy, control over local issues by a majority of the residents, and employment on the reserve, as components of health (Graham & Leeseberg-Stamler, 2010).

An overview of the health literature on First Nations identifies many community components linked to health. Research from the Government of the Northwest Territories (Departments of Education, Culture, and Employment; Health and Social Services, Justice, Municipal and Community Affairs, NWT Housing Corporation, 1995) emphasized the following three strategies to foster community wellness: support of traditional healing practices, education adapted to Aboriginal culture, and control of the community in the identification of its own needs. Mignone and O'Neil (2005) identified the importance of social capital within Manitoban Aboriginal settings. Social capital is defined as the capacity of various groups, such as clans or extended families, within the community to relate to and collaborate with each other.

With respect to the actual prevalence of community wellness, an overview of First Nations communities

between 1981 and 2001 concluded that although significant progress in community well-being had been made during that period, the gap with the Canadian population was still very wide (O'Sullivan, 2006).

The Person and the Environment

Indigenous peoples tend to view the individual as part of his or her social environment. For instance, indigenous theories among those living in the Andean region of Latin America describe the natural environment as an extension of one's body and not something to control or master. Among the Mayas of Mexico and Guatemala, the body is seen as a mirror of the Holy Earth, for example, 'trembling' is a sign of rupture in the normal flow of life for human beings (e.g., fever) as well as for the Earth (e.g., earthquake; Tousignant, 1979). The importance of the health of the external environment is also demonstrated in President Raphael Correa's recent integration into Ecuador's constitution the protection of the rights of the Pachamama, or Mother Nature, in the indigenous mythology. Finally, the work of Bastien (1985) among the Aymara of Bolivia has shown the link between community members and their environment - this culture views the mountains surrounding the village to be structured as a human body with a head and feet. These findings reveal the importance of the link between humans and the environment – revealing that humans are a reflection of their natural environment.

The Assessment of Community Wellness

The concept of community well-being has been assessed with both objective (e.g., housing availability, number of employment opportunities, income, level of education, or crime rate) and subjective indicators (i.e., respondents' perceptions). Much of the literature on community wellness is based on the former.

Various community variables have been shown to be important when assessing the health of communities. The United Nations and Indian and Northern Affairs Canada have identified *income, education, labour force activity, and housing* as essential components in assessing the well-being of First Nations (Cooke, 2005). Chandler, Lalonde, Sokol, and Hallett (2003), in their studies on First Nations suicide in British Columbia, concluded that elements of cultural continuity are key variables in predicting suicide, including *control over land and over local services, such as police and family services*. Recent analyses of First Nations suicide in Quebec revealed that the combination of *preservation of language, local control over decisions, and the transmission of culture* to the younger generation

decreases the risk of suicide (Kirmayer, Sehdev, Whitley, Dandeneau, & Isaac, 2009). Ribova (2000) assessed the association between individual and community well-being among those living in the Circumpolar North, which includes Inuit and First Nations of Northern Canada. Here community well-being is perceived as the overall health, vitality, and *general happiness or self-satisfaction of a community and its people*.

The present chapter will assess the presence of the above mentioned community variables (shown to be predictive of indicators of physical or mental health) among First Nations adults living in First Nations communities.

METHODS

The community wellness section of RHS 2008/10 first asked respondents to identify (from a predetermined list of 10 items) challenges their community was currently facing [response options: education and training opportunities, alcohol and drug abuse, housing, culture, natural environment/resources, health, funding, control over decisions, gang activity, and employment/number of jobs].

Subsequently, respondents were asked to indicate perceived level of change in their community (using the same community variables listed in the previous question) during the 12 months prior to the survey [response options: good progress/change, some progress/change, no progress/change, or worsening]. Responses were categorized into two groups 'some to good progress/change' and 'no progress/change or worsening'.

Next respondents were asked to identify what they considered to be the main strengths of their community [response options: family values, social connections (community working together), traditional ceremonial activities (e.g., powwow), leisure/recreational facilities, use of First Nations language, natural environment, awareness of First Nations culture, community/health programs, low rates of suicide/crime/drug abuse, elders, education and training opportunities, and strong economy).

The association between community variables and demographics were assessed: gender, age, education (elementary, high-school, college diploma or certificate, university) and level of understanding of a First Nations language (no understanding, a few words, intermediate/fluent).

The association between community variables and well-being variables were also assessed. Well-being variables were: general self-perceived health (poor/fair/good health vs. very good/excellent health), psychological

distress (low, moderate or high – assessed using the Kessler Psychological Distress Scale (K10); see Kessler, Andrews, Colpe, et al., 2002; Andrews & Slade, 2001), and mental, physical, emotional, and spiritual balance (some or none of the time vs. most or all of the time).

RESULTS

Community Challenges

When asked about community challenges, the most common responses were alcohol and drug abuse, housing, and employment or number of jobs (see Table 16.1).

Table 16.1. Community Challenges Identified

Community challenge	Identified by First Nations adults % [95% CI]
Alcohol and drug abuse	82.6 [±1.3]
Housing	70.7 [±1.9]
Employment or number of jobs	65.9 [±2.1]
Education and training opportunities	57.5 [±1.9]
Funding	55.8 [±2.1]
Health	44.6 [±2.3]
Culture	42.3 [±2.1]
Control over decisions	37.9 [±2.0]
Gang activities	33.2 [±2.8]
Natural environment and resources	32.5 [±2.1]

Association between perceptions of community challenges and individual demographics

First Nations adults between 30 to 59 years of age were more likely to identify a high number of community challenges (6 or more), compared to those who were younger and older. No gender difference in perceptions of community challenges was observed (see Table 16.2).

With respect to level of education, the proportion of First Nations adults naming six or more challenges increased as level of education increased. Of the First Nations adults with an elementary school education, 37.7% named six challenges or more, compared to 64.9% of those with a university education (see Table 16.2).

Finally, First Nations adults with a higher level of fluency (intermediate or fluent) in a First Nations language reported six or more challenges more often than those with no fluency (47.7% vs. 41.9%, respectively; see Table 16.2).

Table 16.2. Perceptions of Community Challenges by Demographics

Demographic variable	Variable subgroup	Six or more challenges % [95% CI]
Age	18–29	36.6 [±3.2]
	30–39	50.6 [±3.7]
	40–49	50.2 [±3.5]
	50–59	51.5 [±3.8]
	60+	40.9 [±4.5]
Gender	Male	43.8 [±2.6]
	Female	46.8 [±3.0]
Education	Elementary	37.7 [±2.8]
	High school	48.9 [±3.4]
	College diploma or certificate	58.7 [±5.1]
	University (undergraduate)	64.9 [±6.9]
Understanding of First Nations Language	No understanding	41.9 [±3.4]
	A few words / Basic	46.0 [±4.5]
	Intermediate / Fluent	47.7 [±3.1]

Association between perceptions of community challenges and individual well-being

Regarding self-perception of health, First Nations adults who perceived themselves to be in ‘poor/fair/good’ health were more likely to perceive many challenges within the community compared to those in very good/excellent health (see Table 16.3).

Those who had a high level of psychological distress, as indicated by a high score on the Kessler Psychological Distress Scale (K10), reported six or more challenges more often than those who had a low level of psychological distress and a low K10 score (55.1% vs. 40.5%, respectively).

There were no appreciable differences among the four categories of perceived balance (physical, emotional, mental, and spiritual).

Table 16.3. Perceptions of Community Challenges and Well-being

Well-being Variable	Variable level	Six or more challenges % [95% CI]
Perception of health	Excellent / Very good	41.8 [±3.3]
	Good / Fair / Poor	48.2 [±2.6]
Psychological distress score	Low	40.5 [±2.7]
	Moderate	52.4 [±3.2]
	High	55.1 [±5.1]
Balance — physical	Some / None of the time	46.4 [±3.6]
	Most / All of the time	45.6 [±2.5]
Balance — emotional	Some / None of the time	45.7 [±3.4]
	Most / All of the time	45.9 [±2.6]
Balance — mental	Some / None of the time	43.8 [±3.4]
	Most / All of the time	46.4 [±2.7]
Balance — spiritual	Some / None of the time	43.6 [±3.4]
	Most / All of the time	46.8 [±2.6]

Community Progress

For the most part, the majority of First Nations adults who observed challenges within their community perceived that these community challenges had not improved or worsened (see Table 16.4). Progress was least likely to be observed for gang activities and alcohol and drug abuse. In contrast, approximately one-third of First Nations adults who identified community challenges reported improvements in culture, education and training opportunities, and health.

Association between perceptions of community progress and individual demographics and well-being

Results revealed that, among those who identified community challenges, a higher proportion of younger First Nations adults (18 to 29 years) reported community progress (“good/some progress/change”) with alcohol and drugs (18.5% vs. 12.2%) and housing (37.8% vs. 25.4%), compared to First Nations adults 60+ years.

Table 16.4. Perceptions of ‘No Change or Worsening’ of Community Aspects (of those who viewed these as being challenges to the community)

Community aspect	No progress or worsening % [95% CI]
Culture	62.7 [±2.7]
Education and training opportunities	63.1 [±2.5]
Health	64.7 [±2.4]
Housing quality	69.6 [±2.4]
Natural environment and resources	74.4 [±2.5]
Funding	80.3 [±2.1]
Control over decisions	80.6 [±2.1]
Employment or number of jobs	81.4 [±1.8]
Reduction in alcohol and drug abuse	84.2 [±1.6]
Gang activity	88.1 [±2.7]

Community Strengths

When asked about community strengths, First Nations adults were most likely to identify family values, elders and traditional ceremonial activities (see Table 16.5). Conversely, approximately only one-in-ten adults identified low rates of ‘suicide, crime, and drug abuse’ or ‘a strong economy’ as community strengths.

Table 16.5. Community Strengths Identified by First Nations Adults

Community Strength	% [95% CI]
Family values	61.6 [±1.9]
Elders	41.7 [±2.1]
Traditional ceremonial activities (e.g., powwow)	37.8 [±2.6]
Community and health programs	33.4 [±2.0]
Social connections (community working together)	32.6 [±1.9]
Use of First Nations language	31.3 [±2.0]
Education and training opportunities	26.9 [±2.1]
Awareness of First Nations culture	24.9 [±1.8]
Good leisure and recreation facilities	21.0 [±1.7]
Strong leadership	20.4 [±1.7]
Natural environment	16.9 [±1.3]
Low rates of suicide, crime, and drug abuse	13.9 [±1.2]
Strong economy	10.8 [±1.5]

Association between perceptions of community strengths and individual demographics

Although First Nations adults with higher levels of education and the greatest fluency in a First Nations

language were more likely to perceive challenges within the community (see Table 16.2), they were also more likely to perceive strengths (see Table 16.6).

Table 16.6. Perceptions of Community Strengths by Demographics

Demographic variable	Variable subgroup	Four or more community strengths % [95% CI]
Age	18–29	43.5 [±3.4]
	30–39	44.7 [±4.2]
	40–49	40.5 [±3.7]
	50–59	47.3 [±3.2]
	60+	43.0 [±3.3]
Gender	Male	43.0 [±2.6]
	Female	44.3 [±2.6]
Education	Elementary	39.6 [±3.1]
	High school	46.6 [±2.9]
	College diploma or certificate	51.4 [±4.7]
	University (undergraduate)	55.8 [±8.1]
Understanding of First Nations Language	No understanding	38.7 [±3.5]
	A few words / Basic	46.1 [±3.9]
	Intermediate / Fluent	45.4 [±2.8]

Association between perceptions of community strengths and well-being

Results revealed that adults who perceived their health as very good to excellent were more likely to perceive community strengths (compared to those with poorer health). In addition, those who perceived more positive balance, whether physical, emotional, mental or spiritual, tended to perceive more sources of strengths than those who did not often feel balanced. In contrast, First Nations adults with a higher psychological distress score tended to identify fewer community strengths (compared to those with lower psychological distress scores; see Table 16.7).

Table 16.7. Perceptions of Community Strengths and Well-being

Well-being Variable	Variable level	Four or more community strengths % [95% CI]
Perception of health	Excellent / Very good	46.2 [±3.1]
	Good / Fair / Poor	41.7 [±2.4]
Psychological Distress score	Low	44.9 [±3.1]
	Moderate	46.7 [±3.1]
	High	37.7 [±6.0]
Balance — physical	Some / None of the time	39.2 [±3.4]
	Most / All of the time	46.2 [±2.8]
Balance — emotional	Some / None of the time	39.7 [±3.4]
	Most / All of the time	46.0 [±2.7]
Balance — mental	Some / None of the time	39.7 [±3.4]
	Most / All of the time	46.0 [±2.7]
Balance — spiritual	Some / None of the time	38.9 [±3.7]
	Most / All of the time	46.4 [±2.6]

DISCUSSION

Many First Nations adults perceive their community as having a number of strengths. The most commonly noted strengths were family values, elders, and traditional ceremonial activities.

Despite these identified strengths, First Nations adults still identified areas for community improvement. Few adults who observed challenges viewed progress when it came to many community aspects, rather the majority perceived community aspects as worsening or having stayed the same. Alcohol and drug abuse, housing, and employment were identified as the greatest challenges for communities.

The present chapter also explored the association between community factors and well-being. First Nations adults with better perceived health and lower psychological distress were more likely to view greater strengths and fewer challenges for the community. These results suggest that the well-being of First Nations adults living in First Nations communities is not determined exclusively by individual lifestyles but also to some extent by the quality of life in the community. This finding highlights the importance of identifying and improving problematic areas of community life in an effort to promote positive personal well-being.

Interestingly, First Nations adults who had attained a higher level of education and who spoke a First Nations language were more likely to identify both many community challenges and many community strengths. This result suggests that certain members of the community are most likely to celebrate achievements but to also note areas for improvement.

CONCLUSIONS

Results from this survey highlight areas of strength and areas in need of improvement. Strengths were found within the family life of First Nations adults – many adults noted that family values and elders were strengths in the community. With respect to areas in need of improvement, the reduction of alcohol and drug abuse, improvements in housing, and the creation of employment opportunities stand out. Results also revealed areas for possible intervention. Due to the link between community variables and well-being, programming that serves to increase family ties and decrease community challenges are likely to result in greater individual well-being of community members.

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Chapter 17

Personal Wellness and Safety

EXECUTIVE SUMMARY

Well-being and mental health are influenced by a combination of factors, including experiences related to chronic or acute stressors. Considering the high rates of adversity faced by many First Nations adults living on-reserve or in northern communities when compared to the general Canadian population, their higher reporting of psychological distress, suicidal ideation, and suicide attempts in the First Nations Regional Health Survey (RHS) 2008/10 is not entirely unexpected. Low socio-economic status and experiences with aggression and racism were relatively common and associated with increased psychological distress. Furthermore, a large proportion of First Nations adults were negatively affected by their experiences at residential school. Despite the high prevalence of stressors, approximately half of all First Nations adults reported low levels of psychological distress. Lower psychological distress among adults was associated with higher levels of perceived mastery and social support. Interestingly, the importance of religion and spirituality in the lives of First Nations adults was not related to levels of psychological distress. Further research exploring the mechanisms by which these and other variables influence the health and well-being of First Nations adults is needed to develop effective intervention and treatment strategies aimed at alleviating psychological distress in First Nations communities.

KEY FINDINGS

- In each of the four facets of well-being—physical, emotional, mental, and spiritual—approximately three-quarters of all First Nations adults reported feeling balanced “most” or “all of the time.”
 - 73.0% reported feeling balanced physically
 - 73.1% reported feeling balanced emotionally
 - 75.0% reported feeling balanced mentally
 - 71.1% reported feeling balanced spiritually
- Approximately half (50.7%) of all First Nations adults reported either moderate or high levels of psychological distress, compared to only one-in-three adults (33.5%) in the general Canadian population.
- The proportion of First Nations adults who reported suicide ideation at some point in their lifetime (22.0%) was greater than the proportion of adults in the general Canadian population who reported only having thoughts of suicide during their lifetime (9.1%).
- First Nation adults who reported higher levels of stressors, such as low socio-economic status, instances of aggression, and racism, reported being moderately or highly distressed more often than those who did not.
- Just under one-fifth (19.7%) of all First Nations adults reported having attended residential school. Additionally, 52.7% reported having had one or more parents who attended residential school, and 46.2% reported having had one or more grandparents who attended residential school.
- Fewer than half (44.2%) of all First Nations adults who reported that they had attended residential school were defined as having low psychological distress, compared to 50.3% of First Nations adults who had not attended residential school.

INTRODUCTION

In RHS 2002/03 (First Nations Information Governance Committee [FNIGC], 2005), 78% of First Nations adults reported having “good,” “very good,” or “excellent” health. This figure was only slightly lower than the 88% of adults in the general Canadian population who reported the same (Uppal, 2009). Additionally, the majority of First Nations adults felt that “most of the time” they were in balance in the four aspects of their life; approximately 71% felt balanced physically and emotionally, 75% felt balanced mentally, and 69% felt balanced spiritually (FNIGC, 2005). Despite high perceptions of balance and good health among First Nations adults, a somewhat different picture of well-being emerges when individual facets of personal wellness are examined, with differences in the perception of wellness having contributed to these inconsistencies (Svenson & Lafontaine, 1999).

Indeed, the high rates of health issues among First Nations adults are disconcerting. For example, RHS 2002/03 showed that a higher proportion of First Nations adults reported having physical disabilities and certain chronic physical conditions, such as diabetes, heart disease, asthma, and arthritis, compared to the general Canadian population. Additionally, higher rates of various mental and emotional health issues were observed in RHS 2002/03, wherein approximately 30% of First Nations adults reported that they felt sad, blue, or depressed for two consecutive weeks or more in the 12 months prior to the survey, meeting one of the key symptoms of major depressive disorder, based on the *Diagnostic and Statistical Manual of Mental Disorders*. A similar proportion of First Nations adults reported having had suicidal thoughts at some point in their lifetime (FNIGC, 2005). These findings are consistent with elevated rates of depression observed in smaller, community-specific samples (Bombay, Matheson, & Anisman, 2010; Macmillan et al., 2008). Although some First Nations communities are unaffected by suicide (Chandler & Lalonde, 1998), the high national rate of suicide among First Nations adults is a clear testament to the psychological distress present in many First Nations communities.

The disproportionately high numbers of health problems faced by First Nations adults are not surprising, given their frequent exposure to multiple childhood stressors, any of which can have lasting health effects (Blackstock, Trocmé, & Bennett, 2004; FNIGC, 2005). First Nations adults are also more likely to encounter a variety of stressful experiences in adulthood, including poverty and unemployment, injury, violence or assault, and witnessing traumatic events (FNIGC, 2005; Karmali

et al., 2005; Waldram, 1997). Additional stressors related to ethnicity, such as discrimination and stigmatization, also affect the health of First Nations people (Bombay et al., 2010; FNIGC, 2005) and may act as reminders of historical traumas, such as residential schools (Whitbeck, Adams, Hoyt, & Chen, 2004).

Although most individuals will encounter stressful events at some point in their life, only a minority will experience mental or emotional disorders through the development of pathological outcomes as a result of these adverse events. Each individual’s personal characteristics, such as age, gender, and social or economic status, and exposure to prior stressful encounters may increase vulnerability to negative health outcomes (Anisman & Matheson, 2005). In this regard, having a high sense of mastery, referring to the extent that people feel in control of their lives (Pearlin, Lieberman, Menaghan, & Mullan, 1981) can reduce psychological distress directly by protecting against the harmful impacts of stressful experiences (Avison & Cairney, 2003).

Social support has also been shown to have buffering effects against stressors (Kawachi & Berkman, 2001). In general, social support refers to social resources provided by interpersonal relationships (Thoits, 1982; Weiss, 1974), including tangible support, such as direct assistance or material aid; affective support, which provides intimacy, nurturance, and belonging; emotional or informational support, such as having a sense of being able to confide in and rely on another; and positive social interactions, such as having someone to spend time with (Schaefer, Coyne, & Lazarus, 1981; Sherbourne & Stewart, 1991). Any of these factors, alone or in combination, might contribute to the buffering effects against the potential impacts of stressors. Finally, spirituality and religiosity have also been associated with positive physical and mental health outcomes (Ysseldyk, Matheson, & Anisman, 2010), and these factors might similarly have their positive effects by acting as stress buffers.

The Current Chapter

The perspective of wellness among First Nations adults generally comprises physical (body), mental (mind), emotional (heart), and spiritual (spirit) elements, although there can be variations at the individual and group levels. Essentially, being “healthy” reflects balance among these elements, with personal wellness linked to other familial, communal, and environmental factors (McCormick, 2009; Svenson & Lafontaine, 1999). The notion of personal wellness differs from most mainstream views of health, which are typically based

on a medical model in which health is generally thought of as the absence of illness or disease. In addition, some important institutions endorse a more holistic view of health. For example, the World Health Organization's (WHO) definition of health does not merely focus on the absence of disease but rather incorporates physical, mental, and social aspects of well-being. Although the WHO's definition of health is more compatible with Aboriginal views, it still overlooks connections between Aboriginal people and other people, communities, land, animals, or objects, which are also considered important determinants for Aboriginal personal wellness (Chansonneuve, 2005; Svenson & Lafontaine, 1999).

A holistic view of health and wellness is represented in the RHS Cultural Framework and has been endorsed both at the grassroots level and in the academic literature (Mussell, Cardiff, & White, 2004; Waldram, Herring, & Young, 2006). In this framework, First Nations personal wellness is made up of different connected layers, with an individual's personal wellness being represented at the seventh and last level. In accordance with this framework, this chapter addressed personal wellness among First Nations adults by examining indices reflecting physical, mental, emotional, and spiritual aspects of personal wellness, although more focus was placed on mental and emotional well-being, as physical and spiritual or cultural indices of adult personal wellness were covered in other chapters of this report. In keeping with the notion of balance, relationships between dimensions of wellness were also assessed, as were relations with personal and experiential factors that may have been influential in determining wellness. Finally, reflecting the view that personal wellness encompasses more than simply one's own health, relationships between indices of personal wellness and factors included in the other layers of the figure—familial, community, environmental, and societal factors—were explored.

METHODS

Measures

Balance

Survey participants reported how often they felt balanced in their physical, emotional, mental, and spiritual lives, on a scale ranging from 1 ("almost none of the time") to 4 ("all of the time").

Psychological distress

Psychological distress was measured using the Kessler Psychological Distress Scale (Kessler & Mroczek, 1994).

Survey participants were asked how often they experienced symptoms of anxiety or depression in the previous month on a scale ranging from 0 ("none of the time") to 4 ("all of the time"). Responses were summed with possible scores ranging from 0 to 40, with higher scores reflecting greater distress. Based on previous research (Andrews & Slade, 2001; Schmitz, Wang, Malla, & Lesage, 2009), scores ranging from 0 to 5 reflected low distress, scores ranging from 6 to 19 reflected moderate distress, and scores of 20 or higher reflected high psychological distress.

Suicide attempts and suicidal ideation

Survey participants were asked whether they had ever thought about committing suicide and whether they had ever attempted suicide in their lifetime. Those who responded "yes" to either of these questions were asked whether these suicidal thoughts or attempts took place within the previous 12 months, during adulthood, during adolescence (from 12 to 17 years of age), or during childhood (under the age of 12).

Household income

Survey participants were classified as being from low-, middle-, or high-income families based on their total annual household income and the number of people who lived in their household. Households classified as low-income included:

- households with an annual income below \$10,000;
- households with two or more people and an annual income below \$15,000;
- households with three or four people and an annual income of \$10,000 to \$19,000; and
- households with more than five people and an annual income of \$15,000 to \$29,999.

Households classified as high-income included:

- households with one or two people and an annual income of \$30,000 to \$59,000;
- households with three or four people and an annual income of \$40,000 to \$59,999; and
- households with an annual income over \$60,000 (Statistics Canada, 2004).

Physical and verbal aggression

On a scale ranging from 1 ("never") to 4 ("often"), survey participants were asked how often they had

encountered instances of physical aggression, such as hitting, kicking, or crowding, and verbal aggression, such as threats, insults, or name calling, in the 12 months prior to the survey. Those who responded “yes” to either question were then asked if they had sought help with the aggression they encountered.

Racism and impact on self-esteem

Survey participants were asked whether they had personally experienced any instances of racism in the 12 months prior to the survey. Those who answered “yes” were asked how strongly they felt the experience affected their level of self-esteem, on a scale ranging from 1 (“no effect”) to 5 (“very strong effect”).

Mastery

Levels of mastery were measured using the Self-Mastery Scale (Pearlin & Schooler, 1978). The scale comprises seven statements for which survey participants rated their agreement on a scale ranging from 0 (“strongly disagree”) to 4 (“strongly agree”). Examples of statements are “I can do just about anything I really set my mind to” and “I have control over the things that happen to me.” Scores were summed, including items that were reverse-scored, for a minimum of 0 and a maximum of 28, with higher values indicating higher levels of mastery.

Social support

Availability of social support was measured using items from the MOS Social Support Survey (Sherbourne & Stewart, 1991). The original version of the MOS contains 18-items and used a 5-point response scale. The modified version of the MOS included in the RHS 2008/10 includes only 8-items and used a 4-point response scale (response range: 1 = “almost none of the time” to 4 = “all of the time”). An overall social support score was calculated by taking the average of the responses to the eight items. Higher scores for the overall support indicated greater availability of support.

Importance of spirituality and religion

On a scale ranging from 1 (“not important”) to 4 (“very important”), survey participants rated how important traditional spirituality and religion (such as Christianity, Buddhism, and Islam) were in their life.

Canadian comparative statistics

Comparative statistics from the general Canadian population on items included in both RHS 2008/10 and the 2007–08 Canadian Community Health Survey (CCHS) were generated using the Public Use

Microdata File (Statistics Canada, n.d.). The CCHS targets Canadians living in private dwellings in the 10 provinces, excluding residents of institutions, Indian Reserves, Crown lands, and certain remote areas, and full-time members of the Canadian Forces. It should be noted that this survey includes Aboriginal peoples—First Nations, Métis, and Inuit peoples—living off-reserve. Since the adult component of the RHS included those aged 18 or older, survey participants in the CCHS below the age of 18 were not included in analyses.

RESULTS

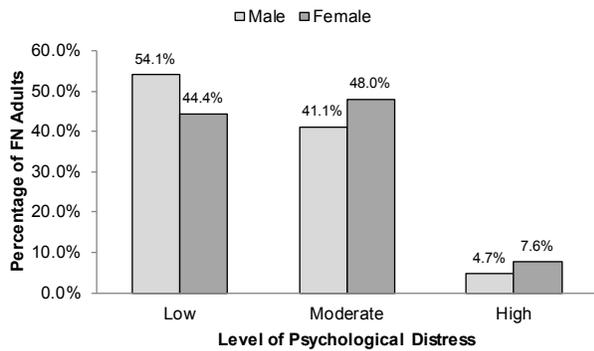
Indices of Personal Wellness

Balance and psychological distress

Perceived balance among First Nations adults in RHS 2008/10 remained virtually unchanged from RHS 2002/03; as 73.0% reported feeling balanced physically, 73.1% reported feeling balanced emotionally, 75.0% reported feeling balanced mentally, and 71.1% reported feeling balanced spiritually “most” or “all of the time” (95% CIs [± 1.5], [$\pm 1.4\%$], [$\pm 1.5\%$], and [$\pm 1.4\%$], respectively). A slightly higher proportion of males than females felt physically balanced “most” or “all of the time” (75.6% vs. 70.3%, 95% CIs [± 2.0] and [± 2.0], respectively), but perceived balance did not differ as a function of gender for the other aspects of well-being. Although the majority of First Nations adults reported feeling balanced, just under half also reported feeling either “moderately” (44.5%) or “highly” distressed (6.2%), which was significantly higher than the proportion of adults reporting moderate or high distress (33.5%) in the general Canadian population (95% CIs [± 1.6], [± 0.6], and [± 11.3], respectively) (Statistics Canada, n.d.).

Though levels of psychological distress were higher among First Nations adults, demographic trends similar to those seen in the general population were observed among those surveyed in RHS 2008/10 (Statistics Canada, n.d.). Specifically, a greater proportion of females than of males reported moderate and high distress (see Figure 17.1); more of those without a high school education had high distress levels (7.5% vs. 3.9%, 95% CIs [± 1.0] and [± 0.8]); and those over the age of 50 were more likely to report low levels of distress than those aged 18 to 49 years (54.6% vs. 47.2%, 95% CIs [± 2.6] and [± 2.0], respectively).

Figure 17.1: Proportion of First Nations Adult Males (n = 4,944) and Females (n = 5,824) Reporting Low, Moderate, and High Psychological Distress



In keeping with the notion of holistic health and the interrelatedness of different aspects of well-being, those who felt balanced most or all of the time in one aspect of wellness were likely to feel similarly balanced in the other facets of wellness (see Table 17.1). For example, among First Nations adults who felt emotionally balanced, 95.7% (95% CI [±0.8]) reported that they also felt balanced mentally “most” or “all of the time.” In contrast, only 19.3% of those who reported not feeling emotionally balanced also felt mentally balanced. Although the association that psychological distress had with emotional well-being was not as strong as it was with the other aspects of well-being, those who felt balanced in any one aspect of well-being reported having moderate or high levels of distress less often than those who did not.

Table 17.1. Proportion of First Nations Adults Feeling Highly Balanced in Each Aspect of Well-being and Who Reported Psychological Distress, by Presence or Absence of High Balance in Each Aspect of Well-being and Distress

		<i>n</i>	High physical balance % [95% CI]	High emotional balance % [95% CI]	High mental balance % [95% CI]	High spiritual balance % [95% CI]	Psychological distress % [95% CI]
High physical balance	Yes	7,881	x	90.6 [±1.0]	91.6 [±1.0]	87.8 [±1.2]	44.4 [±2.2]
	No	2,848	x	25.5 [±2.6]	30.5 [±2.8]	25.8 [±2.6]	68.3 [±2.8]
High emotional balance	Yes	7,902	90.6 [±1.2]	x	95.7 [±0.8]	89.1 [±1.2]	43.3 [±2.2]
	No	2,807	25.5 [±2.8]	x	19.3 [±2.6]	22.3 [±2.4]	71.5 [±2.6]
High mental balance	Yes	8,060	89.0 [±1.2]	93.1 [±1.0]	x	88.7 [±1.4]	44.7 [±2.2]
	No	2,631	24.7 [±2.6]	12.6 [±2.0]	x	17.8 [±2.4]	69.3 [±2.8]
High spiritual balance	Yes	7,805	90.2 [±1.2]	91.5 [±1.0]	93.7 [±0.8]	x	45.2 [±2.0]
	No	2,891	30.8 [±2.8]	27.5 [±2.6]	29.2 [±3.0]	x	64.3 [±2.8]
Psychological distress	Yes	5,094	63.8 [±2.4]	62.2 [±2.2]	66.1 [±2.0]	63.4 [±2.2]	x
	No	5,674	82.6 [±1.8]	84.4 [±1.6]	84.5 [±1.6]	79.1 [±1.8]	x

Note. Those classified as feeling highly balanced were those who reported feeling balanced “most of the time” or “all of the time”; those reporting feeling balanced “none of the time” or “some of the time” were classified as not feeling balanced. Those classified as feeling psychologically distressed were those who reported moderate or high levels of distress. The *n* for each analysis within categories may differ slightly due to missing data.

Suicide ideation and attempts

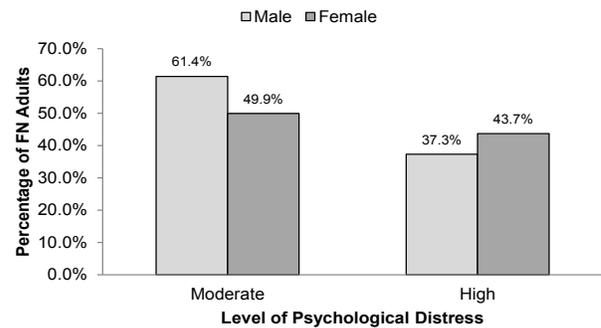
Although there is a lack of information concerning the prevalence of completed suicides among First Nations people (Kirmayer et al., 2007), the rates are estimated to be approximately two to three times higher than those seen among the general Canadian population (Health Canada, 2003). Furthermore, while the overall Canadian rate seems to be declining, taking into account wide variation in rates across First Nations communities, completed suicides have generally continued to rise among First Nations people over the last two decades (Kirmayer et al., 2007). In line with such high estimates of completed suicides among First Nations, 11.8% (95% CI [±1.2]) of First Nations adults in RHS 2008/10 reported having had a close friend or family member who committed suicide.

Almost one-quarter (22.0%, 95% CI [±1.4]) of all First Nations adults reported having had thoughts of suicide at some point in their life, lower than the proportion in the RHS 2002/03 report (30.9%). Rates of lifetime suicide attempts remained about the same, as 13.1% (95% CI [±1.0]) of all First Nations adults reported that they attempted suicide at some point in their life, compared to 15.8% in RHS 2002/03. Consistent with disparities in completed suicides, and reflecting the disproportionate levels of distress in First Nations communities, the proportion of First Nations adults who had thought about suicide was greater than the proportion of adults in the general Canadian population (9.1%, 95% CI [±3.4]) (Statistics Canada, n.d.). Typically, in most populations studied, suicidal ideation far exceeds the frequency of suicide attempts.

The prevalence of lifetime suicide attempts was higher among females than among males, in both the general Canadian population and in RHS 2002/03 (FNIGC, 2005; Statistics Canada, n.d.); however, no gender differences in lifetime suicide attempts or ideation were observed in RHS 2008/10. In line with age trends in RHS 2002/03, lifetime suicide ideation and attempts were lowest among First Nations adults aged 60 years or older (9.4% and 5.1%, respectively, 95% CIs [± 1.8] and [± 1.0]), compared to those aged 40 to 59 years (21.3% and 13.3%, respectively, 95% CIs [± 2.0] and [± 1.6]), and those aged 18 to 39 years (25.6% and 15.1%, respectively, 95% CIs [± 1.8] and [± 1.4]). Of the First Nations adults who reported having contemplated suicide at some point in their life, 20.0% (95%CI [± 2.2]) considered suicide in the year prior to the survey. A similar proportion of First Nations adults reported that such thoughts occurred during adulthood, over 18 years of age, and during adolescence, 12 to 18 years of age (45.7% and 48.8%, 95% CIs [± 2.8] and [± 3.0], respectively), and a small number even reported having had suicidal thoughts during childhood, before the age of 12 (4.2%, 95% CI [± 1.0]). As 20.6% (95% CI [± 3.2]) of those who reported suicidal ideation during adolescence also reported suicidal thoughts in adulthood, it is possible that these adults did not receive appropriate or adequate help as teenagers.

The vast majority of First Nations who reported a lifetime suicide attempt also reported that their attempt occurred during adulthood or adolescence (47.5% and 51.0%, respectively, 95% CIs [± 3.6] and [± 3.8]), while 3.5% (95% CI [± 1.0]) attempted suicide in childhood. Furthermore, 9.7% (95% CI [± 1.8]) of those who had attempted suicide had made an attempt in the year prior to the survey, and virtually all reported moderate or high levels of psychological distress (95.8%, 95% CI [± 4.8]). Although a slightly higher proportion of First Nations females than males had considered suicide in the previous 12 months (23.3% vs. 16.5%, 95% CIs [± 3.0] and [± 3.0], respectively), the proportion of suicide attempts among those who were moderately distressed was greater among males (see Figure 17.2).

Figure 17.2. Proportion of First Nations Males ($n = 45$) and Females ($n = 73$) who Attempted Suicide in the 12 Months prior to the Survey, by Level of Psychological Distress



Risk Factors

Exposure to racism and aggression

Roughly one-third (32.9%, 95% CI [± 0.9]) of First Nations adults reported experiencing physical aggression (rarely, sometimes or often), including hitting, kicking, or crowding, and one-half (51.0%, 95% CI [± 1.2]) reported experiencing verbal aggression (rarely, sometimes or often), such as threats, insults, and name calling, in the year prior to the survey. Whereas reports of verbal aggression in the past year did not differ by gender, compared to females, a higher proportion of males experienced physical aggression (36.7% males vs. 29.1% females, 95% CIs [± 1.3] and [± 1.2], respectively), and a lower proportion of males sought help when confronted with either type of aggression (14.0% males vs. 26.8% females, 95% CI [± 2.6] and [± 3.6], respectively). Not surprisingly, the proportion of both males and females experiencing physical or verbal aggression decreased with age.

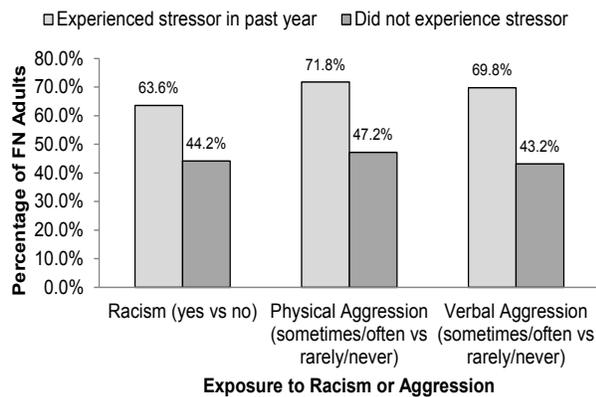
Approximately one-third (32.6%, 95% CI [± 2.0]) of all First Nations adults reported experiencing instances of racism in the 12 months prior to the survey, a slight decrease from the proportion in RHS 2002/03 (37.9%).

The proportion of First Nations adults who reported experiences of racism increased with age, until 40 to 49 years, but then decreased among those aged 50 to 59 years and those aged 60 years or older (see Table 17.2). Of the First Nations adults who reported experiencing racism, 32.6% felt that such experiences had at least some impact on their self-esteem, while the majority reported little (25.2%) or no (42.1%) effect (95% CIs [± 1.7], [± 2.2], and [± 3.4]). Psychological distress was also more likely to be experienced by those who encountered aggression at least sometime in the year prior to the survey (see Figure 17.3).

Table 17.2. Proportion of First Nations Adults Reporting an Instance of Racism in the 12 Months prior to the Survey and Proportion Who Felt Exposure to Racism Had at Least Some Effect on Self-Esteem, by Age Group

Age	Personally experienced instances of racism % [95% CI]	Felt racism had some, strong, or very strong effects on self-esteem % [95% CI]
18–29	33.4 [±3.2] (n = 2,351)	26.2 [±4.6] (n = 745)
30–39	37.4 [±3.2] (n = 1,751)	29.4 [±6.0] (n = 584)
40–49	38.1 [±3.6] (n = 1,712)	35.1 [±5.6] (n = 592)
50–59	29.3 [±3.6] (n = 1,959)	40.3 [±6.2] (n = 527)
60+	18.0 [±2.4] (n = 2,685)	47.2 [±7.2] (n = 400)

Figure 17.3. Proportion of First Nations Adults Reporting Moderate or High Levels of Psychological Distress, as a Function of Past-Year Exposure to Racism or Aggression



Note. For racism, for “yes,” n = 2,850; for “no,” n = 7,518. For physical aggression, for “sometimes/often,” n = 1,276; for “rarely/never,” n = 9,150. For verbal aggression, for “sometimes/often,” n = 2,631; for “rarely/never,” n = 7,807.

Residential schools

In RHS 2008/10, 19.7% (95% CI [±1.6]) of First Nations adults reported that they had attended residential school. This figure was down slightly from the proportion in RHS 2002/03 (20.3%).

Of those who attended residential school, the majority began between 5 and 10 years of age (58.1%), followed by 11 to 17 years of age (36.6%); first attending residential before age 5 and after age 18 was uncommon (3.6% and 1.7%, respectively). The most common ages for first attendance were between 5 and 7 years. With respect to leaving residential school, the majority left between 11 to 17 years of age (63.8%), followed by 5 to 10 years of age (18.2%) and over 18 years of age (17.7%). The most common ages for leaving residential schools were between 14 to 16 years. As

expected, residential school attendance increased as the age of First Nations adults increased (see Figure 17.4).

Figure 17.4. Proportion of First Nations Adults who Attended Residential School, by Age

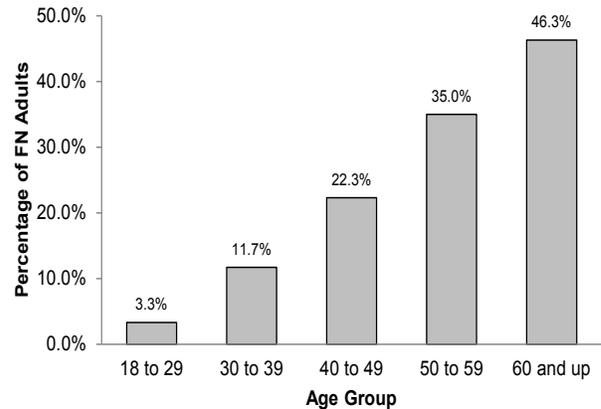
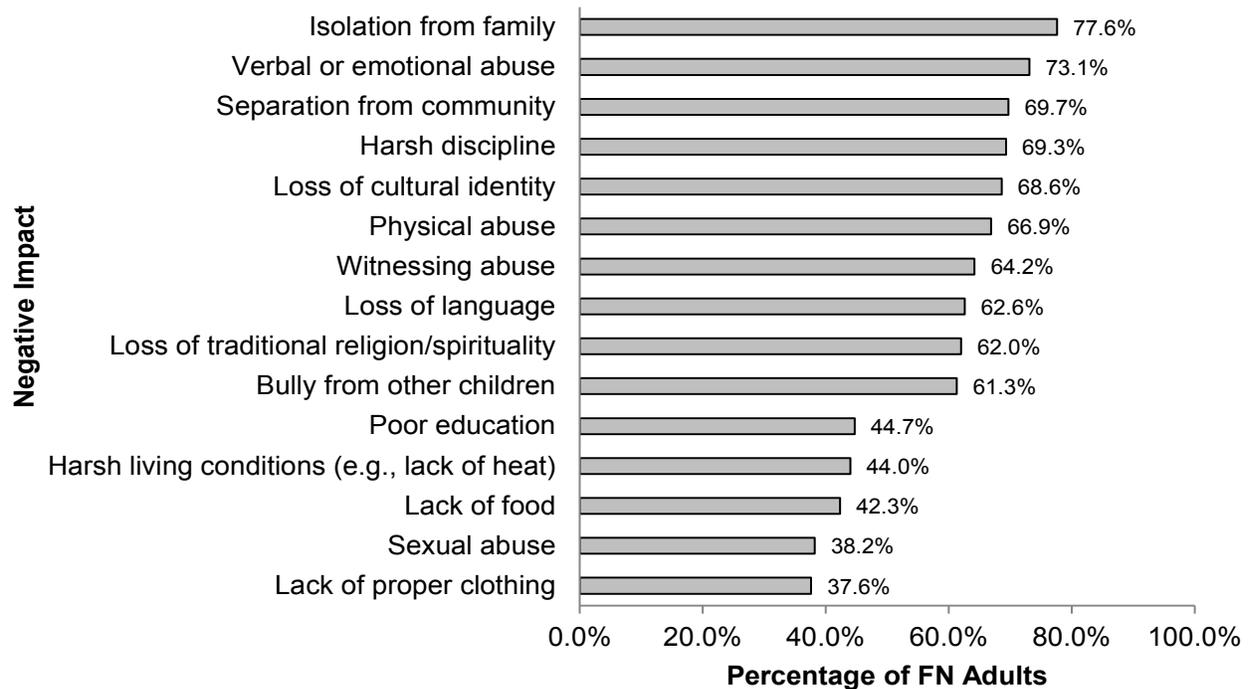


Figure 17.5. Negative Impacts of Residential School Attendance, as Reported by First Nations Adults in RHS 2008/10



Of the First Nations adults who reported that they had attended residential school, 21.5% (95% CI $[\pm 2.6]$) reported that they had thought about attempting suicide at some point in their life, compared to 22.1% (95% CI $[\pm 1.5]$) of First Nations adults who had not attended. Additionally, of the First Nations adults who reported that they had attended residential school, 15.6% (95% CI $[\pm 2.3]$) reported that they had attempted suicide, compared to 12.5% (95% CI $[\pm 1.2]$) of First Nations adults who had not attended residential school.

Non-prescription drug use was stratified into two groups: those who abused cannabis, including marijuana, pot, grass, hash, etc., and those who abused all other drugs, including cocaine (coke, crack, etc.), amphetamine-type stimulants (crystal meth, speed, ecstasy, etc.), inhalants (solvents, glue, petrol, paint thinner, etc.), sedatives or sleeping pills (Valium, Serepax, Rohypnol, etc.), hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.), and opioids (heroin, morphine, methadone, codeine, etc.). First Nations adults who had attended residential school were less likely than those who had not to have never abused cannabis or other drugs; 77.2% (95% CI $[\pm 2.7]$) of residential school attendees reported that they had never abused cannabis, whereas 65.3% (95% CI $[\pm 1.9]$) of First Nations adults who had not attended residential school reported that they had never abused cannabis.

Similarly, 72.6% (95% CI $[\pm 2.8]$) of the First Nations adults who reported that they had attended residential school also reported that they had never abused any other drug, compared to 60.7% (95% CI $[\pm 2.0]$) of First Nations adults who had not attended residential school.

Overall, 83.7% (95% CI $[2.9]$) of First Nations adults who reported that they had attended residential school also reported that they could understand or speak a First Nations language, compared to 66.0% (95% CI $[\pm 3.3]$) of First Nations adults who had not attended residential school. First Nations adults were also surveyed on their highest level of formal education completed. Table 17.3 demonstrates the proportions of First Nations adults' highest level of formal education completed, by residential school status. Table 17.4 demonstrates intergenerational attendance at residential school.

Table 17.3. Highest Level of Education Completed by First Nations Adults, by Residential School Attendance

Highest level of education completed	Attended residential school %	Did not attend residential school %
Less than high school	38.1	40.5
High school	3.9	11.2
Some trade, technical, or vocational school, community college, CEGEP, or university	24.6	21.9
Diploma or certificate from trade, technical, or vocational school, community college, CEGEP, or university	22.2	17.9
Undergraduate degree	4.1	3.6
Professional degree	0.8	0.8
Master's degree or doctorate (PhD)	0.5	0.5

Table 17.4. Proportion of First Nations Adults with Familial Attendance at Residential School

Generation	Percentage
One or more parent	52.7
One or more grandparent	46.2
One or more parent and one or more grandparent	19.9

First Nations adults were asked about their participation in their local community's cultural events and the importance of traditional spirituality and religion in their lives. Overall, 66.7% of the First Nations adults who reported that they had attended residential school also reported that they "sometimes" or "always or almost always" participated in their local community's cultural events, compared to 67.3% of First Nations adults who had not attended residential school. Additionally, of the First Nations adults who reported that they had attended residential school, 81.7% also reported that they found traditional spirituality "somewhat important" or "very important" in their life, compared to 79.4% of First Nations adults who had not attended residential school. Finally, 69.5% of the First Nations adults who reported that they had attended residential school also reported that they found religion "somewhat important" or "very important" in their life, compared to 67.7% of First Nations adults who had not attended residential school.

First Nations adults were also asked to report on their feelings regarding how often their life was in balance physically, emotionally, mentally, and spiritually. Table

17.3 indicates the proportion of First Nations adults who felt in balance "most" or "all of the time" in each of the four categories of balance, by residential school attendance.

Table 17.5. Proportion of First Nations Adults who Reported Feeling in Balance, by Residential School Attendance

Type of balance	Attended residential school %	Did not attend residential school %
Physical	72.1	73.2
Emotional	72.4	73.1
Mental	73.7	75.3
Spiritual	74.9	70.0

Psychological distress was measured using the Kessler Psychological Distress Scale. A greater proportion of First Nations adults who had not attended residential school had low psychological stress than those who had attended residential school (50.3% vs. 44.2% (95% CIs [± 2.0] and [± 3.2], respectively). Additionally, 6.9% (95% CI [± 1.2]) of the First Nations adults who reported that they had attended residential school were defined as having high psychological distress, compared to 6.0% (95% CI [± 0.8]) of the First Nations adults who had not attended residential school.

Resource Variables

Mastery

Consistent with the protective effects of mastery seen in the general Canadian population and in community samples of First Nations and American Indian adults (Daniel, Cargo, Lifshay, Green, 2004; Hobfoll, Jackson, Hobfoll, Pierce, & Young, 2002), First Nations adults in RHS 2008/10 with low and moderate levels of psychological distress reported higher levels of mastery ($M = 20.6$, 95% CI [± 0.1]) than did those with high levels of psychological distress ($M = 16.8$, 95% CI [± 0.4]). Mastery among First Nations adults who experienced other forms of interpersonal stressors, namely physical aggression ($M = 19.4$, 95% CI [± 0.3]) and verbal aggression ($M = 19.9$, 95% CI [± 0.2]), was lower when compared to those who rarely or never encountered these experiences ($M = 20.6$ and $M = 20.6$, 95% CIs [± 0.2] and [± 0.2], respectively).

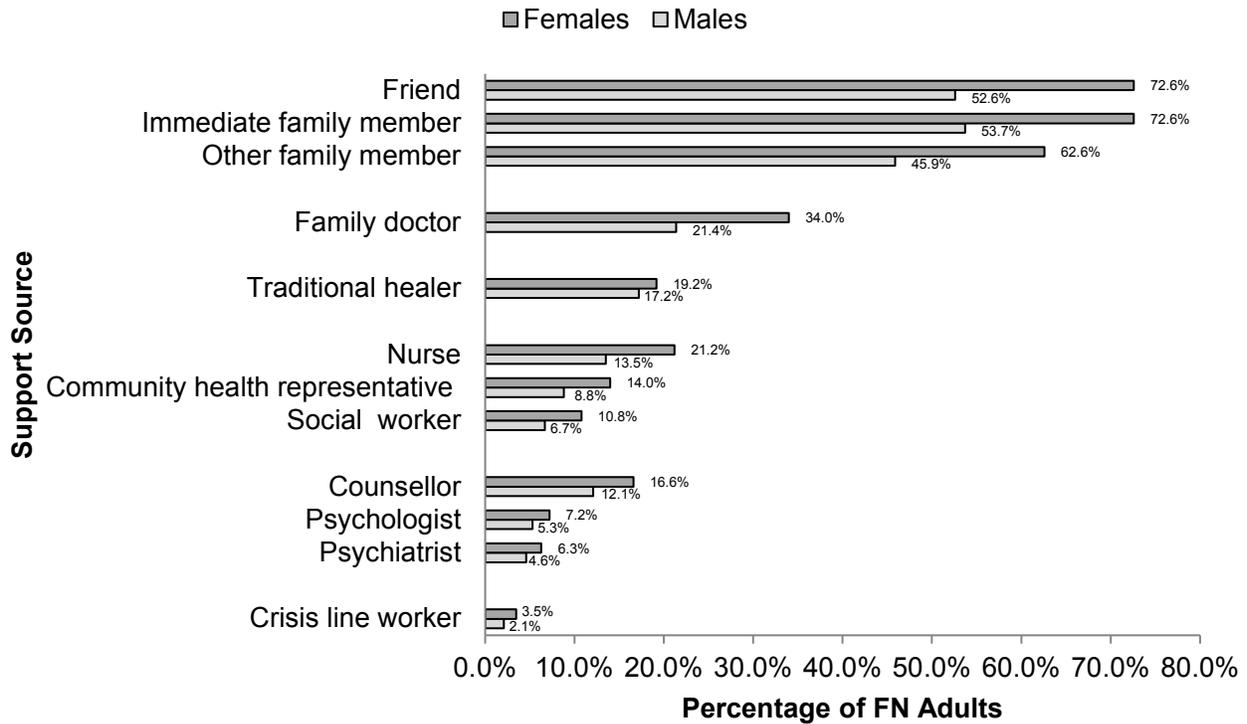
Social support

Although limited, research among First Nations has suggested that social support is a strong determinant of well-being (Richmond, Ross, & Egeland, 2007). This was confirmed in RHS 2008/10, as those with low psychological

distress reported greater levels of overall support (M = 3.4, 95% CI [± 0.03]) than did those with moderate and high levels of distress (M = 3.0, 95% CI [± 0.03]). First

Nations adults reported that when they were in need of emotional or mental health support, they most commonly turned to friends and family members (see Figure 17.6).

Figure 17.6. Proportion of First Nations Males (n = 4,753) and Females (n = 5,649) who Used Emotional or Mental Health Sources of Support in the 12 Months prior to RHS 2008/10



Note. The n may differ slightly due to missing data.

Importance of religion and spirituality

The majority (79.9%, 95% CI [± 1.4]) of First Nations adults reported that traditional spirituality was at least a “somewhat important” aspect of their life. There were no age or gender differences in this regard. The majority of First Nations adults also reported that a specific religion was “very important” or “somewhat important” in their life (68.2%, 95% CI [± 1.6]). The proportion of those who considered religion at least “somewhat important” was higher among females than among males (73.6% vs. 63.0%, 95% CIs [± 2.0] and [± 2.2], respectively) and increased with age (61.1% for those aged 18 to 29 years, 68.0% for those aged 30 to 49 years, 72.3% for those aged 50 to 59 years, and 79.2% for those aged 60 or older; 95% CIs [± 3.0], [± 2.4], [± 3.4], and [± 2.2], respectively).

DISCUSSION

Although the majority of First Nations adults reported feeling balanced, just under half also reported feeling “moderately” or “highly” distressed, which was

significantly higher than the proportion of adults reporting moderate or high distress in the general Canadian population (Statistics Canada, n.d.). Significantly greater levels of psychological distress have also been observed among Aboriginal people living off-reserve, compared to the general Canadian population, and were found to be the highest of any ethnic group (Caron & Liu, 2010). Such disparities in distress levels also seem to be present in other countries. For example, indigenous Australians reported moderate or high levels of psychological distress twice as often as those in the general Australian population (Australian Institute of Health and Welfare, 2009). Indigenous populations worldwide are faced with similar historical and contemporary adversities.

Although limited data are available regarding rates of mental health disorders among First Nations adults, levels of psychological distress are often used as a screening tool to identify likely cases of mental health disorders in clinical or epidemiological settings (Furukawa, Kessler, Slade, & Andrews, 2003; Schmitz, Lesage, &

Wang, 2009) and are particularly effective in screening for major depression (Cairney, Veldhuizen, Wade, Kurdyak, & Streiner, 2007). Although rates of depressive disorder cannot be established from RHS 2008/10, the disproportionately high rates in the First Nations adult population, compared to the general Canadian population, may suggest that the prevalence of major depression is greater among First Nations adults living in First Nations communities. Assuming an association between distress and depression, this is consistent with higher levels of depression among First Nations adults found in community-based research (Macmillan et al., 2008). Disproportionate levels of depressive disorders have also been observed among American Indian communities, but variations in rates across communities have been reported, highlighting the diversity that exists between groups (Beals, Manson, et al., 2005; Beals, Novins, et al., 2005).

Although a slightly higher proportion of First Nations females than males considered suicide in the year prior to the survey, the proportion of suicide attempts among those who reported moderate psychological distress was greater among males. A similar gender difference was reported in a WHO study wherein females who attempted suicide had higher levels of depressive symptoms. Interestingly, this study also reported that males were more likely to have used alcohol at the time of the attempt (Stefanello, Cais, Mauro, Freitas, & Botega, 2008). Considering the higher levels of heavy drinking among First Nations males than among females (FNIGC, 2005), as well as evidence suggesting that alcohol is more likely to be involved in suicide among Aboriginal peoples (Kirmayer et al., 2007), this finding may be related to higher levels of impulsivity or disinhibition associated with drinking at the time of suicide attempt. Of course, this and other possible explanations should be explored further.

It might appear surprising that males and females with moderate psychological distress levels had higher rates of suicide attempts than did individuals with high psychological distress. It is known that severe depression is likewise associated with lower levels of suicide, possibly stemming from the lethargy and fatigue present when depressive symptoms are sufficiently intense. It is uncertain whether this was similarly the case among First Nations adults who experienced high levels of psychological distress, but this possibility warrants further consideration.

Increased exposure to social stressors is thought to be a contributing factor to health disparities seen among ethnic minorities. These social stressors may stem from limited opportunities and resources, such as poor education, lack

of high-paying jobs, and life in unsafe neighborhoods (Dressier, Oths, & Gravlee, 2005; Yen & Syme, 1999).

In addition to structured inequalities, such as socioeconomic status and community characteristics, that contribute to health disparities, approximately one-third of all First Nations adults reported experiencing instances of racism in the past year, a slight decrease from the findings of RHS 2002/03. Although this is a large proportion of adults, the prevalence of experiences with racism seems relatively low when compared to previous research. For example, a large national survey found that 70% of Aboriginal adults, including First Nations, Métis, and Inuit adults, living in urban areas across Canada somewhat or strongly agreed that they had experienced unfair treatment due to their Aboriginal background, and 89% somewhat or strongly agreed that non-Aboriginal people behave in unfair or negative ways towards Aboriginal people (Enviroics Institute, 2010). Likewise, a smaller study of mainly urban First Nations adults from across Canada found that 99% of adults reported experiencing some kind of discriminatory experience in the past year (Bombay et al., 2010). The categorical nature (i.e., “yes” or “no”) of responses in RHS 2008/10 may have contributed to this disparity, but it is also possible that urban First Nations do in fact encounter higher levels of racism simply due to increased contact with non-Aboriginal people.

Although rates of perceived racism were lowest among those aged 50 years or older, the perceived impact on self-esteem was greatest in this age group, perhaps because racism is more likely to act as a reminder of historical traumas among older adults (Whitbeck et al., 2004). Despite the fact that the majority who experienced racism believed it did not significantly impact their self-esteem, these individuals reported moderate or high levels of distress more often than those who did not experience racism in the past year, a finding consistent with previous research among First Nations adults (Bombay et al., 2010; Whitbeck et al., 2004). The processes that might be underlying these findings are uncertain, but they may reflect a psychological self-protective tendency for people to distance themselves from the negative attribute of discrimination, which may or may not operate at a conscious level (Carney, Banaji, & Krieger, 2010). In addition to the detrimental impact that such discriminatory experiences have on health outcomes, there is evidence that the denial of such instances of discrimination may also be associated with poor outcomes (Carney et al., 2010). Of course, social stressors unrelated to one’s ethnic background are also associated with negative outcomes.

The forced attendance at residential school that many generations of First Nations experienced carried with it numerous physical and mental ramifications. The impact that isolation, abuse, and harsh discipline had on these generations continues to manifest itself in the lives of First Nations adults. Despite this, it was encouraging to discover that many First Nations adults who reported having attended residential school have, for the most part, avoided self-deprecating behaviours. The proportion of First Nations adults who had suicidal ideation or suicide attempts, abused non-prescription drugs, or demonstrated high psychological distress did not differ among those who had or had not attended residential school. Additionally, rates of participation in local community cultural events, traditional spirituality, and religion did not differ between First Nations adults who had and those who had not attended residential school. Finally, a greater proportion of First Nations adults who had attended residential school than of those who had not were actually able to understand or speak a First Nations language. These findings are a clear testament to the commitment that First Nations people still have to their culture, even having once been within the grasp of forced assimilation programs.

It has been suggested that in view of the history of colonization and the continued structural and interpersonal discrimination experienced, Aboriginal peoples may be less likely to view themselves as being able to exercise control over their life circumstances (Spillane & Smith, 2007; Taylor, 2000). Furthermore, it has been suggested that perceived discrimination affects psychological health by undermining one's self-evaluation of personal attributes and competencies, particularly with respect to beliefs regarding mastery over life circumstances. Unfair treatment related to unalterable characteristics such as ethnicity reinforces feelings of powerlessness (Broman, Mavaddat, & Hsu, 2000; Fernando, 1984; Ross & Sastry, 1999). However, these views were not supported by the current data, as levels of mastery among First Nations adults were comparable to those in the general Canadian population. Also inconsistent with this perspective was the finding that the First Nations adults who reported having experienced racism in the year prior to the survey did not report lower levels of mastery.

These data do not speak to the factors that might account for the differential relationships between mastery and other indicators of well-being, but distinguishing between esteem related to one's identity (personal self-esteem) and esteem related to First Nations identity (collective self-esteem) may provide a cogent explanation. In this regard, racial assaults have been shown to influence well-being

by diminishing collective self-esteem, whereas personal victimization not attributable to ethnicity—for example, aggression—has a direct association with one's personal self-competence (mastery) and self-worth (Fischer & Holz, 2007; Verkuyten & Thijs, 2006; Williams et al., 2008). That being said, among other minority groups, perceived discrimination has been shown to be related to personal mastery. It has been proposed that negative feelings about one's cultural group, stemming from discriminatory experiences, can reduce a sense of belonging within a group, thereby diminishing feelings of mastery to endure life challenges (Constantine, Robinson, Wilton, & Caldwell, 2002; Crocker, Luhtanen, Blaine, & Broadnax, 1994; Phinney & Alipuri, 1996). In the current research, it may be that discrimination does not influence mastery among First Nations adults living in First Nations communities because one's competence in relation to everyday challenges is less related to fitting in with mainstream society.

First Nations adults reported that when in need of emotional or mental health support they most commonly turned to friends and family members. Females were more likely to turn to any of several sources of support to diminish distress, with the exception of traditional healers and psychologists. This gender difference is commonly observed in various populations, as females generally display greater "tend and befriend" tendencies than males and are better able to use supports effectively (Taylor et al., 2000). As social support is a form of coping, it might attenuate psychological symptoms, secondary to stressful encounters.

Religion has been associated with improved well-being, in part because it is related to social support derived from members of one's religious community (Ysseldyk et al., 2010). Contrary to expectations, there were no differences in levels of psychological distress or in overall support received as a function of the importance of religion or spirituality in the lives of First Nations adults.

CONCLUSION

In line with the conclusions of RHS 2002/03, findings from RHS 2008/10 demonstrate the urgent need for concerted efforts to address well-being among First Nations adults. Of particular concern are the high levels of distress present in First Nations communities, compared to the general Canadian population. Although psychological distress was not measured in RHS 2002/03, these findings are consistent with high levels of depressive symptoms reported among First Nations

people in RHS 2002/03 as well as with high distress levels observed in Aboriginal peoples living off-reserve and Indigenous populations around the world (Australian Institute of Health and Welfare, 2009; Caron & Liu, 2010). The urgency of addressing mental health disparities is also signaled by the continued high rates of suicide ideation and attempts reported by First Nations adults.

Although RHS 2008/10 reported positive outcomes on certain indicators, such as perceived balance and good general health, the interrelationships between various aspects of well-being observed point to distressing trends in wellness. In this regard, identification of important psychosocial factors that contribute to distress among First Nations people is fundamental for the development of effective prevention and intervention approaches. Although a more in-depth analysis of the RHS data is needed to determine the mechanisms by which risk and resource variables interact to affect wellness, this chapter identifies certain factors that appear to be important determinants of well-being.

Consistent with previous research, the current data suggest that the impact of stressors on wellness is particularly relevant to First Nations peoples, given their disproportionately high exposure to such events. A greater proportion of First Nations adults with low income, minimal education, and greater experiences of aggression were psychologically distressed. Depending on the severity of experiences, aggression may constitute “traumatic stressors,” which typically include experiences such as child abuse, assault, rape, and serious accidents, which are not currently measured by the RHS. Although regional and community samples have revealed the disproportionate prevalence of severe trauma among Aboriginal Canadians (Karmali et al., 2005), national data would help elucidate the specific types of trauma typically experienced in First Nations communities. This is fundamentally important as prevention and intervention strategies can be developed based on the types of stressors and trauma experienced, which can then be tailored to meet the individual needs of specific communities.

The current data also highlight the impact of both contemporary and historical ethnicity-related stressors on First Nations wellness. Consistent with previous research among First Nations and American Indians (Bombay et al., 2010; Whitbeck et al., 2004), it appears that experiencing racism was associated with poor mental health outcomes. Despite this association, many First Nations adults felt that such experiences did not have an impact on self-esteem when asked directly, and reports of racism seemed relatively low when compared to reports among

urban samples of Aboriginal adults. Further research might explore potential explanations for these findings, including the use of self-report measures of discrimination (Carney et al., 2010) and potential differences between First Nations people living in First Nations communities and those living outside of First Nations communities.

Just as certain individuals and groups are particularly vulnerable to poor health outcomes, resource variables can influence resilience to the adverse effects of previous and ongoing stressors. High levels of mastery and social support were observed among First Nations adults. This is encouraging as these variables were protective against psychological distress; however, those most vulnerable may not be benefiting from these resources. Social support was lower among low-income households and those affected by residential schools. Mastery was lower among First Nations adults without a secondary education. Although mastery and support were generally high in communities, other protective factors that may be relatively deficient among First Nations adults living in First Nations communities and among specific subpopulations, such as residential school attendees, should be identified. Further exploration is needed regarding how individuals appraise and cope with stressful situations or events, as well as the role of the different facets of First Nations identity on well-being, including collective self-esteem (Bombay et al., 2010). Likewise, although the importance of spirituality or religion in one’s life was not related to distress, it is certainly conceivable that these factors may interact with other aspects of well-being, such as identity, and thus merit further study.

Finally, although the majority of First Nations adults living on-reserve or in northern communities seem to have adequate social support resources, less is known about the role of unsupportive relationships at individual and structural levels, which refers to upsetting or unhelpful responses received from one’s social network (Ingram, Betz, Mindes, Schmitt, & Smith, 2001). Unsupport, which is distinct from a lack of support, has been shown to have disastrous effects among other minority populations and may also be influential for First Nations wellness (Jordan, Matheson, & Anisman, 2009). Ultimately, further identification of weaknesses (vulnerabilities) and strengths (resilience factors) and a greater understanding of the mechanisms behind their impacts on First Nations wellness is needed to facilitate the development of effective strategies to improve well-being in First Nations communities.

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Chapter 18

Traditional Culture

EXECUTIVE SUMMARY

This chapter presents data from the First Nations Regional Health Survey (RHS) 2008/10 on perceptions of and participation in traditional culture among First Nations adults living on-reserve and in northern communities. Fewer than half of First Nation adults (42.3%) identified 'culture' as being a current community challenge. However, of those who identified culture as a challenge, the majority (83%) felt that culture within their community remained the same or improved in the last 12 months.

The majority of First Nations adults participated in some aspect of traditional culture, including community cultural events, hunting or trapping, or eating and sharing traditional foods. Engaging in traditional spirituality, using a First Nations language, and using traditional medicine were also valued by many First Nations adults. Participation in some cultural traditions (e.g., use of First Nation language) was more common among the older First Nations adults (60+ year of age). This finding suggests that younger generations may be less exposed to certain traditions or young adults may experience more difficulty incorporating these traditions into their lives.

For the most part, First Nations adults who are more involved in the cultural elements of their community reported more control over their lives; more spiritual, mental, emotional, and physical balance; less substance use; and less depression (in comparison to those who participate less often). Encouraging the continuation of and participation in traditional culture appears to have potential for optimizing well-being among First Nations adults.

KEY FINDINGS

- 42.3% of First Nations adults identified ‘culture’ as being a current community challenge. However, of those who identified culture as a challenge, the majority (83%) felt that culture within their community remained the same or improved in the last 12 months.
- Many First Nations adults (67.1%) participated in community cultural events at least “sometimes.”
 - First Nations adults who frequently participated in community cultural events were less likely to be depressed, more likely to perceive control over their lives, more likely to perceive greater social support, and less likely to use licit and illicit substances than those who infrequently participated in community cultural events.
- More than two-thirds of all First Nations adults (69.6%) are able to understand or speak a First Nations language, and more than one-third of adults (36.2%) use a First Nations language daily.
 - The ability to understand or speak a First Nations language and daily use of a First Nations language was less common among younger First Nations adults.
- Traditional spirituality was at least “somewhat” important to approximately 80% of all First Nations adults.
 - A lower proportion of younger First Nations adults viewed traditional spirituality as being at least “somewhat” important, compared to older adults.
- Only a minority of First Nations adults (21%) had visited a healer in the 12 months prior to the survey; an increase was observed since RHS 2002/03 (15%). Use of traditional medicine (39.6%) appeared to be more common than use of a traditional healer.
 - Younger First Nations adults were less likely to use traditional medicine.
- The traditional food consumed most often was bannock or fry bread, followed by land-based animals (moose, caribou, bear, deer, bison, etc.), berries or other wild vegetation, and freshwater fish. Approximately 85% of all First Nations adults had someone share traditional food with their household at least “sometimes” in the 12 months prior to the survey.
- A higher proportion of First Nations adults who participated in more traditional activities (such as hunting and trapping, fishing, hiking, canoeing or kayaking, snowshoeing, or berry picking or other food gathering) reported physical or spiritual balance, compared to those that did not participate in these more traditional activities.

INTRODUCTION

Traditional culture typically refers to the knowledge, attitudes, beliefs, customs, and values that have been passed down from generation to generation within a particular group of people. Culture may be expressed through song, dance, ceremonies, spiritual beliefs, diet, games, and activities. Cultural traditions tend to be carried out by elders, traditional healers, and other individuals designated by the community (Kreuter & McClure, 2004).

The legacy of injustices and suffering brought on by a history of colonialism, forced assimilation, and suppression of religious beliefs and practices has had a devastating impact on the transmission of traditional culture and the well-being of First Nations people (Kirmayer, Brass, & Tait, 2000; National Collaborating Center for Aboriginal Health, 2010; Smylie, 2008). Additionally, the continuing lack of historical awareness of the experience of First Nations people has served to prolong the negative impact.

For First Nations people, health tends to be understood as maintaining balance in all aspects of life: spiritual, mental, emotional, and physical (BC Ministry of Health, 2002). The collective exposures of First Nations people to European-Canadian policies are thought to be the prime cause of the poor health observed in the First Nations population. These policies have had, and continue to have, a damaging effect on First Nations people at every level of experience, from individual integrity and mental health to the structure and integrity of families, communities, and nations (Tait, 2003). This past and present devaluation of the First Nations collective identity is linked with high rates of depression, substance abuse, and suicide (Kirmayer et al., 2000).

Contemporary efforts by the First Nations population to heal from these traumas have focused greatly on re-establishing the transmission of traditional culture, such as efforts to restore language and religious and communal practices (Armstrong, 2000; Chandler & Lalonde, 1998). This has entailed mobilizing traditional activities that serve to promote community solidarity and provide individuals with systems of meaning.

Therefore, the purpose of this chapter is threefold:

1. To describe current participation in, and perceived importance of, elements of traditional culture among First Nations adults living in First Nations communities;
2. To assess change in participation in and perceived importance of traditional culture over time, by utilizing data from RHS 2002/03; and,
3. To assess links between well-being and participation in traditional culture.

METHODS

The RHS 2008/10 for adults included questions on aspects of traditional culture, including participation in cultural events, use of First Nations language, visits to traditional healers, and others.

Participants were asked how often they took part in community cultural events, with “always/almost always,” “sometimes,” “rarely,” and “never” being possible responses.

Regarding language, participants were asked which language they used most in their daily life, with “French,” “English,” “a First Nations language,” and “other” given as options. As well, they were asked whether they could speak or understand a First Nations language.

Participants were asked when they last visited a traditional healer (“within the last 12 months,” “1–2 years ago,” “over 2 years ago,” or “never”) and whether they used traditional medicine. Participants who answered that they used traditional medicine were asked if they had had any difficulties when trying to access traditional medicine. A list of potential difficulties was provided (participants could choose more than one of the following responses): “do not know where to get them,” “can’t afford it,” “concerned about effects,” “do not know enough about them,” “not available through health care,” “not covered by Health Canada’s Non-Insured Health Benefits Program,” “not interested.”

Regarding eating and sharing traditional foods, participants were asked how often in the 12 months prior to the survey (“not at all,” “a few times,” “often”) they ate the following traditional foods: land-based animals, including for example moose, caribou, bear, deer, and bison; freshwater fish; saltwater fish; other water-based foods, including shellfish, eels, clams, and seaweed; sea-based animals, such as whale and seal; game birds, such as goose and duck; small game, such as rabbit and muskrat; berries or other wild vegetation; bannock or fry bread; wild rice; and corn soup. In addition, participants were also asked how often (“often,” “sometimes,” “never”) someone shared traditional food with their household in the 12 months prior to the survey.

Participants were asked how important traditional spirituality was to them, and they could choose from among “very important,” “somewhat important,” “not very important,” and “not important” as responses.

Regarding culture and the community, participants were asked to report whether they had observed any change in

culture within their community in the 12 months prior to the survey. The response options were “good progress/change,” “some progress/change,” “no progress/change,” and “worsening.” Responses were categorized into: some to good progress/change vs. no progress/worsening.

Participants were asked about the impact of residential schools on culture. Those who felt that their attendance at residential schools had had a negative impact on their health were asked to choose from a list of possible contributions to this negative impact: “loss of language,” “loss of cultural identity,” “loss of traditional religion/spirituality,” “isolation from family,” “separation from community.”

Regarding traditional activities, participants were asked whether they had participated in any of the following in the 12 months prior to the survey: hunting or trapping; fishing; berry picking or other food gathering; hiking; canoeing or kayaking; and snowshoeing.

In order to assess the potential link between traditional culture and well-being, a number of variables were considered, including the Kessler Psychological Distress Scale (“low” vs. “moderate/high”); perceived control over life (mean score of seven-item five-point Likert scale); and spiritual, physical, mental, and emotional life balance (“all the time/most of the time,” “some of the time/almost none of the time”).

The association between traditional culture and licit and illicit substance abuse was also assessed. Participants were asked whether they currently smoked cigarettes, whether they had consumed alcohol in the 12 months prior to the survey, and, if so, how often they drank (“once a day,” “about 2–3 times a week,” “about 2–3 times a month,” “about once a month,” “about 2–3 times a year”) and how often they binge drank (i.e., 5 or more drinks per sitting; “every day,” “more than once per week,” “once per week,” “2–3 times per month,” “once per month,” “less than once a month,” “never”). Participants were also asked whether they had used cannabis or any other drugs, including cocaine, amphetamine-type stimulants, inhalants, sedatives or sleeping pills, hallucinogens, and opioids (response options: “never,” “once or twice,” “monthly,” “weekly,” and “daily or almost daily.”)

Finally, the association between eating traditional food and perceptions of eating a nutritious diet was also assessed. Participants were asked if they ate a balanced, nutritious diet “sometimes/almost always/always,” or “rarely/never.”

RESULTS

Traditional Culture and the Community

Fewer than half (42.3%) of First Nations adults identified ‘culture’ as being a current community challenge. Of those who identified culture as a challenge, the majority (83%) felt that culture within their community remained the same or improved in the last 12 months; only a minority of these adults (17.7%, 95% CI [15.8, 19.7]) reported that they felt that culture was worsening in their community. No significant differences were seen with respect to age and gender in the perceptions of whether the culture in the community was improving, staying the same, or worsening.

Participation in Traditional Cultural Events

The majority of First Nations adults (67.1%, 95% CI [65.4, 68.8]) reported that they participated in community cultural events at least “sometimes” (see Table 18.1). No significant differences were seen with respect to age and gender with the exception that a higher proportion of males reported “never” attended community cultural events compared to females (14.2% vs. 10.8%, 95% CIs [12.6, 15.8] and [9.7, 12.0], respectively).

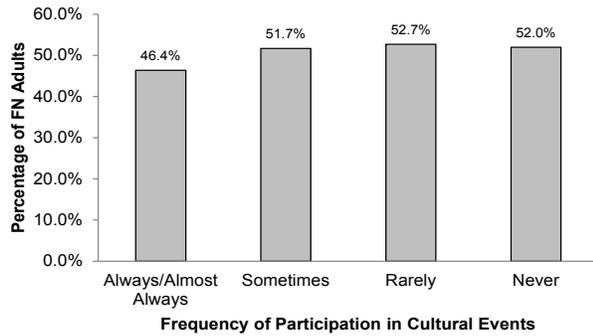
Table 18.1. Frequency of Participation in Community Cultural Events

Participation in community cultural events	Percentage	95% CI
Always / almost always	20.7	[19.5, 22.1]
Sometimes	46.4	[45.0, 47.7]
Rarely	20.4	[19.1, 21.7]
Never	12.5	[11.4, 13.7]

Participation in Traditional Cultural Events and Well-being

More frequent participation in community cultural events was associated with greater well-being. A lower proportion of First Nations adults who “always/almost always” participated in community cultural events reported being depressed compared to those who participated in cultural events less often (see Figure 18.1).

Figure 18.1. Depression (moderate to high), by Frequency of Participation in Cultural Events



Participating in community cultural events “sometimes to always” was also associated with a higher perceived control over one’s life ($M = 3.98$, 95% CI [3.95, 4.00]) compared to those who participated less often ($M = 3.86$, 95% CI [3.83, 3.89]).

Participation in Traditional Cultural Events and Substance Use

With the exception of cigarette smoking, licit and illicit substance use was inversely associated with participating in community cultural events (see Table 18.2).

Table 18.2. Percent of Adults Reporting Substance Use by Frequency of Participation in Cultural Events

	Frequency of Participation in Cultural Events			
	Always/ almost always	Some-times	Rarely	Never
% using alcohol in past 12 months	57.2	66.2	68.9	68.9
% using alcohol weekly or more	17.7	19.3	24.5	28.1
% binge drinking weekly	12.4	14.5	18.6	18.5
% using cannabis in past 12 months	27.8	32.7	35.9	33.9
% using illicit drugs (besides cannabis) in the past 12 months†	13.9	14.9	18.5	16.5
% current smoker	54.7	55.9	60.2	58.2

† ‘harder drugs’ include use of cocaine, amphetamine-type stimulants, inhalants, sedatives or sleeping pills, hallucinogens, or opioids.

Traditional Activities

Traditional activities are considered by some First Nations to be an important part of their culture. Unfortunately, in

the period since RHS 2002/03, the rate of participation in hiking, snowshoeing, berry picking or other food gathering, and canoeing or kayaking has declined (see Table 18.3).

First Nations men aged 18 to 29 reported the highest rates of fishing, hiking, canoeing or kayaking, and hunting or trapping. First Nations women aged 18 to 29 reported the highest rates of dancing. First Nations women aged 30 to 49 reported the highest rates of berry picking or other food gathering.

Table 18.3. Percentage of First Nations Adults Participating in Traditional Activities (RHS 2002/03 vs. RHS 2008/10)

	RHS 2002/03 % [95% CI]	RHS 2008/10 % [95% CI]
Hunting/trapping	25.0 [22.9, 27.3]	22.1 [20.8, 23.4]
Fishing	33.2 [31.2, 35.3]	32.2 [30.7, 33.7]
Hiking	25.7 [23.8, 27.7]	19.2 [17.9, 20.5]
Snowshoeing	7.9 [6.5, 9.5]	4.8 [4.3, 5.4]
Berry picking or other food gathering	32.2 [30.1, 34.3]	28.3 [26.7, 30.0]
Canoeing/kayaking	17.2 [15.3, 19.3]	8.3 [7.5, 9.2]

Traditional Activities and Well-being

Overall, a higher proportion of First Nations adults who participate in more traditional activities (hunting or trapping, fishing, dancing, hiking, canoeing or kayaking, snowshoeing, or berry picking or other food gathering) reported having more frequent physical and spiritual balance, compared to those who did not participate in these more traditional activities ($p < 0.05$).

Eating Traditional Foods

The traditional food that First Nations adults reported consuming most often was bannock or fry bread. This was followed by land-based animals (moose, caribou, bear, deer, bison, etc.), berries or other wild vegetation, and freshwater fish.

The rate of consumption of traditional foods remained largely the same between RHS 2002/03 and RHS 2008/10, with the exception that in RHS 2008/10 more First Nations adults reported consuming freshwater fish and small game such as rabbit or muskrat “often,” and fewer First Nations adults reported consuming berries or other wild vegetation and bannock or fry bread “often” (see Table 18.4).

Table 18.4. Percentage of First Nations Adults Eating Traditional Foods “Often”

	RHS 2002/03 % [95% CI]	RHS 2008/10 % [95% CI]
Land-based animals (moose, caribou, bear, deer, bison, etc.)	25.7 [23.4, 28.2]	26.4 [24.6, 28.3]
Freshwater fish	16.6 [14.8, 18.5]	22.3 [20.7, 24.1]
Saltwater fish	4.3 [3.2, 5.9]	6.4 [5.4, 7.6]
Other water based foods (shellfish, eels, clams, seaweed, etc.)	2.8 [2.0, 4.0]	3.4 [2.7, 4.4]
Sea-based animals (whale, seal, etc.)	0.4 [0.2, 0.8]	0.3 [0.3, 0.4]
Game birds (goose, duck, etc.)	8.9 [7.0, 11.1]	8.7 [7.7, 9.9]
Small game (rabbit, muskrat, etc.)	5.3 [4.6, 6.2]	7.2 [6.4, 8.1]
Berries or other wild vegetation	26.0 [24.0, 28.2]	18.6 [17.1, 20.1]
Bannock/ Fry bread	46.9 [43.8, 50.1]	37.3 [35.7, 39.1]
Wild rice	N/A	6.0 [5.3, 6.8]
Corn soup	7.6 [5.2, 11.1]	5.7 [4.5, 7.3]

Some significant differences were seen with respect to age and gender in the consumption of traditional foods. A higher proportion of First Nations men and older adults reported eating land-based animals, freshwater fish, small game, and game birds “often” compared to First Nations women and younger adults. A higher proportion of older adults reported consuming saltwater fish and berries or other wild vegetation compared to younger adults.

Eating Traditional Foods and Perceptions of a Nutritious, Balanced Diet

A higher proportion of First Nations adults who ate at least one type of traditional food “often” reported that they “always/almost always” ate a nutritious, balanced diet (34.5%, 95% CI [32.5, 36.6]), compared to those who did not consume any traditional foods “often” (25.5%, 95% CI [23.6, 27.6]).

Sharing Traditional Food

Traditional food was often shared among households in First Nations communities, as approximately 85% of First Nations adults reported that someone had shared

traditional food with their household “often” (28.0%, 95% CI [26.6, 29.4]) or “sometimes” (57.6%, 95% CI [56.1, 59.2]). No significant differences were observed with respect to age and gender in sharing traditional food. Additionally, no change was observed in the rate of sharing traditional food between RHS 2002/03 and RHS 2008/10.

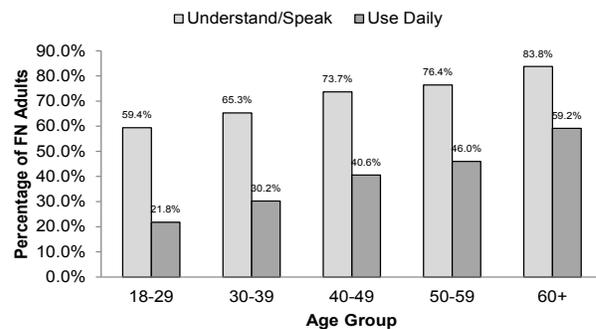
Sharing Traditional Food and Well-being

First Nations adults who shared traditional food with other households perceived themselves as being more spiritually balanced than those who did not: 75.5% who shared traditional food “often” perceived themselves as spiritually balanced, 70.1% who shared traditional food “sometimes” perceived themselves as spiritually balanced, and 67.4% who shared traditional food “never” perceived themselves as spiritually balanced (95% CIs [73.2, 77.6], [68.3, 71.8], and [62.5, 71.9], respectively).

Use of First Nations Language

Approximately two-thirds (69.6%) of First Nations adults living in First Nations communities reported being able to speak or understand a First Nations language, and approximately one-third (36.2%) reported using a First Nations language daily (95% CIs [66.8, 72.2] and [33.7, 38.8], respectively). Unfortunately, use of a First Nations language appears to be decreasing, as younger First Nations adults less often reported speaking or being able to understand a First Nations language than did older First Nations adults (see Figure 18.2).

Figure 18.2. Use of First Nations Language by Age



Use of First Nations Language and Well-being

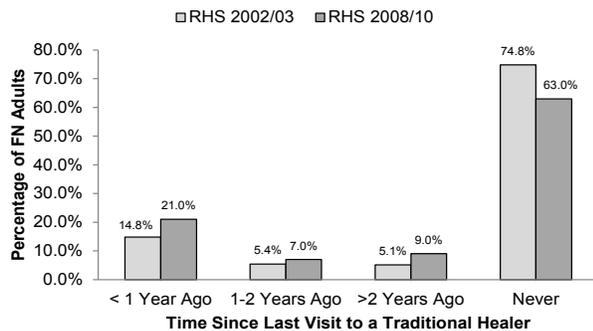
A higher proportion of First Nations adults who used a First Nations language daily reported more frequent spiritual balance compared to those who did not use a First Nations language daily (73.6% vs. 65.8%, 95% CIs [72.2, 75.0] and [62.9, 68.6], respectively). Despite this positive finding, First Nations adults who used a First Nations language daily also perceived

that they had less control over their lives than those who did not use a First Nations language daily .

Visits to a Traditional Healer

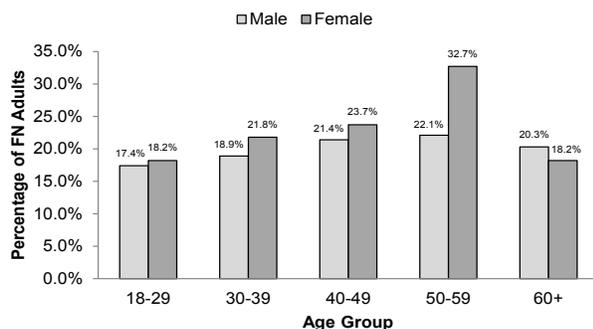
Few First Nations adults reported that they had visited a traditional healer in the 12 months prior to the survey (see Figure 18.3). This, however, still represented an increase during the period between RHS 2002/03 and RHS 2008/10 (14.8% vs. 21%, 95% CI [12.7, 17.0] and [19.4, 22.7], respectively).

Figure 18.3. Visits to a Traditional Healer



No significant differences were seen with respect to age and gender, with the exception that First Nations females aged 50-59 years were the most likely to report having visited a traditional healer (compared to the rest of the First Nations population; 32.7% vs. approximately 20%; see Figure 18.4).

Figure 18.4. Visits to a Traditional Healer by Age and Gender



Visits to a Traditional Healer and Well-being

First Nations adults who reported having visited a traditional healer in the 12 months prior to the survey reported having poorer physical health (25.9% vs. 21.5%) and higher rates of depression (17.7% vs. 13.7%) more often than those who did not (95% CIs [23.6, 28.2], [19.9, 23.1], [15.3, 20.4], and [12.6, 15.0], respectively).

In contrast, those First Nations adults who reported having visited a traditional healer in the 12 months prior to the survey reported that they felt mentally (79.1% vs. 73.5%) and spiritually (77.4% vs. 67.8%) balanced more often than those who did not (95% CIs [76.6, 81.5], [71.7, 75.1], [74.8, 79.9], and [63.8, 68.9], respectively).

Use of Traditional Medicine

More than one-third (39.6%, 95% CI [37.9, 41.5]) of First Nations adults living in First Nations communities reported using traditional medicine. Use of traditional medicine did not vary by gender; however, a lower proportion of younger First Nations adults—those aged 18 to 29—reported using traditional medicine compared to older First Nations adults—those aged 60 or over (34.4% vs. 47%, 95% CIs [31.6, 37.4] and [44.1, 49.9], respectively). No differences were observed in the proportions of First Nations adults reporting the use of traditional medicine between RHS 2002/03 and RHS 2008/10.

Access to Traditional Medicine

The majority of First Nations adults (76.5%, 95% CI [74.5, 78.3]) who reported using traditional medicine did not report any difficulties accessing traditional medicine. When difficulties were reported, the mostly cited were: “not knowing where to get traditional medicines” (9.1%), “having to travel to far” (7.3%), and “not available through health care” (6.1%).

Traditional Spirituality

Traditional spirituality was reported as being at least “somewhat” important to 79.9% of First Nations adults living in First Nations communities (see Table 18.5). No major changes were seen between RHS 2002/03 and RHS 2008/10, with the exception that in RHS 2008/10 First Nations a lower proportion of adults reported that traditional spirituality was “not important” to them (7.7% vs. 11.1%, 95% CIs [6.8, 8.7] and [9.6, 13.1], respectively).

Table 18.5. The Importance of Traditional Spirituality in the Lives of First Nations Adults in RHS 2008/10 (n = 10,391)

Importance of traditional spirituality	Percentage	95% CI
Very important	43.7	[41.9, 45.5]
Somewhat important	36.2	[34.8, 37.7]
Not very important	12.4	[11.5, 13.3]
Not important	7.7	[6.8, 8.7]

No difference was seen with respect to gender in the importance of traditional spirituality. Differences were seen with respect to age: First Nations adults aged 18 to 29 reported traditional spirituality as “very important” in their life less often than did those aged 60 or over (36.3% vs. 50.5%, 95% CIs [33.4, 39.3] and [47.7, 53.3], respectively).

Traditional Spirituality and Well-being

A higher proportion of First Nations adults who reported that traditional spirituality was “very important” in their life reported feeling mental (79.8% vs. 72.7%, $p < 0.05$), physical (77% vs. 70.8%, $p < 0.05$), emotional (77.3% vs. 70.8%, $p < 0.05$), and spiritual balance (82.2% vs. 63.7%, $p < 0.05$), compared to those who placed less importance on traditional spirituality. Additionally, First Nations adults who reported that traditional spirituality was “very important” in their life reported greater control over their life ($M = 3.91$ vs. $M = 3.98$, $p < 0.05$), compared to those who placed less importance on traditional spirituality. No association was seen between the importance of traditional spirituality and depression.

Impact of Residential Schools on Traditional Culture

Many First Nations adults who attended a residential school have reported that it had a negative impact on their overall health and well-being. More than 60% of First Nations adults living in First Nations communities reported that this negative impact resulted from loss of language, loss of cultural identity, loss of traditional religion or spirituality, isolation from family, and separation from community. First Nations adults who attended a residential school reported visiting a traditional healer (38.1% vs. 28.9%) and using traditional medicine (49.5% vs. 37.1%) more often than those who did not (95% CIs [34.4, 41.9], [26.7, 31.2], [46.7, 52.2], and [35.0, 39.3], respectively).

DISCUSSION

Despite the negative impacts that assimilation has had on First Nations people and their traditional culture, many aspects of their traditional culture continue to thrive. Participation in traditional cultural activities appears to

be highly valued. Many First Nations adults reported participating in at least one element of their traditional culture, such as sharing food, using traditional medicine, engaging in traditional spirituality, or speaking or understanding a First Nations language. Additionally, the majority of First Nations adults reported that culture in their community had improved or had at least remained the same over the 12 months prior to RHS 2008/10.

Participation in community cultural events was common among First Nations adults. No differences with respect to age were observed in the rates of participation in community cultural events, suggesting that participation in cultural events is valued by all generations. This finding is particularly positive given the observed association between participating in community cultural events and well-being; those who reported participating in community cultural events reported less depression, greater social support, higher perceived control over one’s life, greater life balance, and less licit and illicit drug use and abuse more often than those who did not.

Unfortunately, it appears that the ability to speak or understand a First Nations language is on the decline. Older First Nations adults reported that they used a First Nations language daily more often than did younger First Nations adults. This finding is concerning, as First Nations language is the means by which knowledge, skills, and cultural values are expressed and maintained from generation to generation (National Collaborating Centre for Aboriginal Health, 2010). The maintenance of First Nations language is critical to the revitalization and survival of traditional culture (Battiste & Henderson, 2000).

Traditional spirituality was reported to be at least “somewhat” important to the majority of First Nations adults, and this finding did not differ from that in RHS 2002/03. Viewing traditional spirituality as important is associated with greater well-being, including a higher level of emotional, mental, spiritual, and physical balance, as well as greater perceived social support, and greater control over one’s life. These findings suggest that efforts to keep traditional spirituality alive within First Nations communities are both successful and beneficial to the First Nations population.

A minor increase in the reported number of First Nations adults who visited a traditional healer was found in the period between RHS 2002/03 and RHS 2008/10 (15% vs. 20%, respectively), suggesting that there has been a possible return to more traditional forms of healing. Additionally, in RHS 2008/10, approximately 40% of First Nations adults reported using traditional

medicine. Of those who reported using traditional medicine, very few reported that they had experienced barriers when attempting to obtain traditional medicine.

It must be mentioned that, due to the cross-sectional design of RHS 2008/10, the directionality of the associations between traditional culture and well-being cannot be determined. It may be that those who report greater well-being also participate in traditional cultural activities more often, or that those who participate in traditional cultural activities also report greater well-being. Therefore, the associations between variables related to traditional culture and variables related to well-being should be interpreted with caution. Further research must be done to better understand the nature of the observed associations.

CONCLUSIONS

Elements of traditional culture are present in the lives of many First Nations adults living on-reserve or in northern communities. Participating in traditional culture can take many forms, including attending community cultural events, visiting a traditional healer, speaking or understanding a First Nations language, or valuing traditional spirituality. Participating in traditional culture is associated with many benefits, including greater perceived control over one's life, greater spiritual balance, less substance use and abuse, and less depression. These associations highlight the importance of encouraging and celebrating First Nations traditional culture.

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The Health and Well-Being of First Nations Youth



The RHS youth questionnaire is comprised of data from individuals aged 12-17 years. Data collection was conducted between June 2008 and November 2010 in a targeted 250 First Nations communities across Canada. All individuals that took part in the survey were randomly selected using locally updated band membership lists. The youth survey was completed via self-report with a median completion time of 30 minutes. All survey data were collected on mobile laptops using Computer Assisted Personal Interviewing software (CAPI).

A total of 4,837 First Nations youth across 216 communities were part of the RHS results.

Youth

Chapter 19

Household Environment

EXECUTIVE SUMMARY

This chapter presents the findings of the First Nations Regional Health Survey (RHS) 2008/10 on the household environment of First Nations youth aged 12 to 17 years living on-reserve and in northern communities. Factors assessed included the number of household members with whom First Nations youth lived and the relationship of youth to the other household members. Data reveal that First Nations youth live in homes with many other household members; on average, First Nations youth live in households with 5.7 people, including the respondent, compared to 2.5 people per household in the general Canadian population. Results also reveal that despite high household membership, fewer than half of First Nations youth live with both biological parents. Compared to First Nations youth who do not live with both biological parents, a lower proportion of First Nations youth who live with both biological parents reported feeling lonely, un-loved and stressed.

KEY FINDINGS

- First Nations youth reported living in households with an average of 5.7 people, including the respondent. In contrast, the average number of persons in a household in the general Canadian population is 2.5 (Statistics Canada, 2006).
- 18.7% of First Nations youth reported living with seven or more people.
- 38.2% of First Nations youth live with both of their biological parents; the remaining youth live with their biological mother but not their biological father (39.7%), their biological father but not their biological mother (5.7%), or neither biological parent (16.4%).
- Of the 16.4% of First Nations youth who live with neither biological parent
 - Approximately half (48%, 95% CI [43.8, 52.3]) reported living with grandparent(s);
 - One-quarter (23.8%; CI: 20.2, 27.9) reported living with an aunt, uncle, or cousin;
 - Very few (5%) live with someone they are not related to.
- 13.9% of First Nations youth who live with one biological parent also live with a stepmother or stepfather.
- A lower proportion of First Nations youth who live with both biological parents reported feeling lonely, unloved, stressed, and depressed compared to those who live with one biological parent.

INTRODUCTION

This chapter presents findings from RHS 2008/10 on the household environment of First Nations youth living in First Nations communities. The chapter focuses on factors associated with the home environment of First Nations youth, including the number of household members and their relationship to the youth living in the home. The associations between household environment and the self-reported well-being of First Nations youth are also explored.

Household Factors and Well-Being

Occupant density and overcrowding

First Nations youth usually grow up in a home with many other household members. Research has found that First Nations households on-reserve have approximately 1.5 times as many people per household than households in the general Canadian population (Aboriginal Affairs and Northern Development Canada [AANDC], 2011). Although household membership in the general Canadian population has remained quite steady at approximately 2.5 persons per household, for First Nations on-reserve the number has declined only slightly, from 4 persons per household in 1996 to 3.7 persons per household in 2006 (AANDC, 2011). Additionally, the rate of overcrowding (defined by Statistics Canada as the proportion of persons living in homes with more than one person per room (excluding bathrooms, halls, laundry room and attached shed)) is six times greater on-reserve than off-reserve (Statistics Canada, 2006). The proportion of crowded homes in 2006 was approximately 1.7% for the general Canadian population compared to 12.1% for First Nations on-reserve (Statistics Canada, 2006).

For the most part, overcrowded housing is from necessity rather than choice. Many reserves have been struggling with housing shortages for years, and unfortunately the housing shortage on-reserve is becoming more severe (AANDC, 2011). Currently there is a sizeable backlog of families waiting for housing. According to Aboriginal and Northern Affairs Canada (2011), 20,000 to 35,000 new units would have to be built to meet current demand. The Assembly of First Nations puts the figure closer to 85,000.

High household membership and overcrowding are worrisome for the effects they have on the mental and physical health of the people who live there. For instance, overcrowding has been linked with reports of strained relationships and negative family interactions (Bartlett, 1998; Youssef, Attia, & Kamel, 1998). Additionally, higher levels of home density have been found to be associated

with social withdrawal in youth and lower levels of parental responsiveness to their child's needs (Bradley & Caldwell, 1984; Evans, Maxwell, & Hart, 1999).

Relationship to occupants

Despite high numbers of household members, single-parent families are common in First Nations communities. Just under one-third (31%) of First Nations children aged 14 years or younger lived with a lone mother, more than twice the proportion of 14% among children in the general Canadian population. Similarly, 6% of First Nations children aged 14 years or younger lived with a lone father, compared with only 3% of their counterparts in the general Canadian population (Statistics Canada, 2006). Single-parent homes have consistently been associated with poorer outcomes for children and youth, including higher levels of drug and alcohol use, higher numbers of criminal offences, lower self-esteem, and lower academic achievement (Astone & McLanahan, 1991; Covey & Tam, 1990; Dornbusch et al., 1985; Parish, 1991).

The existence of family support may mediate some of the negative outcomes associated with single-parent homes (Elliott, 2009). Sharing homes with extended family or other community members creates opportunities to share responsibility and provides additional support when raising and caring for children (Canada First Nations Families, 2011). Thus, youth who live with one biological parent as well as other members of their extended family may be somewhat buffered from the negative impacts that can be associated with single-parenthood.

In summary, previous links have been demonstrated between household environment and subsequent cognitive and behavioural development. This chapter attempts to get a clearer picture of the household structure of First Nations youth and the effect this has on their emotional well-being.

METHODS

Household Structure

First Nations youth indicated how many people they live with “at least half of the time” in the following age categories: children aged 11 or younger, youth aged 12 to 17 years, and adults aged 18 or older. These variables were combined to determine the number of household members.

First Nations youth were also asked to report whom they live with “most of the time.” They were presented 15 possible answers and asked to mark all that apply (e.g., biological mother, biological father).

General and Mental Health

First Nations youth were asked to rate their general and mental health; response options included “excellent,” “very good,” “good,” “fair,” and “poor.” They were subsequently asked to rate the extent to which they felt lonely, loved, and stressed; response options were “not at all,” “a little,” “moderately,” “quite a bit,” and “a lot.” Finally, First Nations youth were asked whether they had felt sad, blue, or depressed for two weeks or more in a row during the 12 months prior to the survey.

RESULTS

Number of Household Members

First Nations youth reported living with an average of 5.7 people (including the respondent; 95% CI [5.4, 5.8]).

Approximately one-fifth of First Nations youth reported living with seven or more people (excluding themselves; see Table 19.1), suggesting possible overcrowding.

Table 19.1. Number of People Youth Live With (excluding the respondent)

Number of people	% [95% CI]
0 (living alone)	0.5 [0.3, 0.8] ^E
1	5.3 [4.5, 6.1]
2	13.1 [11.7, 14.6]
3–4	38.2 [35.9, 40.6]
5–6	24.3 [22.6, 26.0]
7–8	11.4 [10.1, 12.9]
9 or more	7.3 [5.7, 9.2]

Note. CI = confidence interval

^E High sampling variability. Interpret estimate with caution.

Living with Biological Parents

Approximately 4 out of 10 (38.2%) First Nations youth reported living with both of their biological parents most of the time. Similarly, 39.7% reported living with their biological mother but not their biological father most of the time (see Table 19.2).

Table 19.2. Proportion of Youth Living with Biological Parent(s) Most of the Time

Status of living with biological parents	% [95% CI]
Living with neither biological parent	16.4 [14.9, 18.1]
Living with biological mother but not biological father	39.7 [37.4, 42.0]
Living with biological father but not biological mother	5.7 [4.9, 6.7]
Living with both biological parents	38.2 [36.0, 40.4]

Not Living with Biological Parents

Of the 16.4% of First Nations youth who reported living with neither biological parent, approximately half (48%, 95% CI [43.8, 52.3]) reported living with grandparent(s); 23.8% (95% CI [20.2, 27.9]) reported living with an aunt, uncle or cousin; 7.1% (95% CI [4.9, 10.3]) reported living with their boyfriend, girlfriend, or spouse; 7.4% (95% CI [5.6, 9.7]) reported living with either an adopted mother or father; and 4.7% (95% CI [3.4, 6.3]) reported living with a man or woman of no relation.

Biological Parent and Step-parent

Few First Nations youth who reported living with one biological parent also lived with a stepmother or stepfather. Only 13.7% of First Nations youth who reported living with their biological mother also lived with a stepfather; similarly, only 12.7% of First Nations youth who reported living with their biological father also lived with a stepmother.

Number of Household Members and Well-being

General and mental health

The general and mental well-being of First Nations youth did not vary by the number of people they reported living with.

Perceptions of loneliness, love, stress, and depression

The proportion of First Nations youth who reported that they felt lonely or loved varied by the number of people with whom they live. A higher proportion of First Nations youth who live with only one other person reported feeling lonely and feeling unloved, compared to those who live with more than one person (see Table 19.3). No clear association was observed regarding the number of household members and reported levels of stress or depression.

Table 19.3. Proportion of Youth Reporting Feelings of Loneliness, Love, Stress and depression by Number of Household Members

Household Members (excluding respondent)	“Moderately to very” lonely % [95% CI]	“Not at all to moderately” loved % [95% CI]	“Quite a bit to very” stressed % [95% CI]	Symptom of depression % [95% CI]
1	21.9 [16.5, 28.4]	25.0 [17.9, 33.8]	14.6 [10.0, 20.8] ^E	35.2 [26.4, 45.1]
2	11.0 [8.2, 14.7]	18.8 [14.7, 23.7]	15.2 [12.0, 19.0]	20.0 [15.8, 24.9]
3–4	12.2 [10.4, 14.4]	18.3 [16.1, 20.7]	12.2 [10.4, 14.3]	25.3 [22.7, 28.2]
5–6	14.6 [11.7, 18.1]	18.3 [15.6, 21.4]	13.4 [10.7, 16.6]	25.5 [22.3, 29.1]
7–8	13.2 [8.7, 19.6] ^E	15.1 [11.9, 19.1]	8.8 [6.4, 12.1]	21.0 [16.7, 25.9]
9 or more	14.2 [8.4, 23.1] ^E	20.4 [13.8, 29.2] ^E	16.1 [9.2, 26.6] ^E	35.0 [26.2, 44.9]

^E High sampling variability; use estimate with caution.

Family Structure and Well-being

General and mental health

A lower proportion of First Nations youth who live with both of their biological parents reported fair/poor general health and mental health (as opposed to good/very/good or excellent health), compared to those with other household make-ups (see Table 19.4).

Perceptions of loneliness, love, stress, and depression

A lower proportion of First Nations youth who live with both biological parents reported feeling lonely, stressed and depressed, and a higher proportion reported feeling loved, compared to youth in other family structures. Approximately one-quarter of First Nations youth who reported living with their biological father but not their biological mother or neither biological parent felt “not at all” to “moderately” loved (see Table 19.5).

Table 19.4. Proportion of Youth Reporting Fair to Poor Health, by Whether They Lived with Biological Parent(s)

Family Structure	“Fair to poor” general health % [95% CI]	“Fair to poor” mental health % [95% CI]
Living with neither biological parent	9.2 [6.8, 12.4]	23.8 [20.0, 28.2]
Living with biological mother but not biological father	8.5 [6.8, 10.6]	18.4 [15.3, 21.3]
Living with biological father but not biological mother	14.5 [8.7, 23.2] ^E	24.4 [18.8, 31.0]
Living with both biological parents	4.6 [8.1, 11.1]	15.5 [13.4, 17.9]

^E High sampling variability; use estimate with caution.

Table 19.5. Proportion of Youth Reporting Feelings of Loneliness, Love, Stress and Depression by Family Structure

Family structure	“Moderately to very” lonely % [95% CI]	“Not at all to moderately” loved % [95% CI]	“Quite a bit to very” stressed % [95% CI]	Symptom of depression % [95% CI]
Living with neither biological parent	15.9 [12.9, 19.5]	23.8 [20.0, 28.2]	17.5 [14.5, 21.0]	33.3 [28.7, 38.2]
Living with biological mother but not biological father	15.6 [13.0, 18.6]	18.4 [15.3, 21.3]	14.1 [11.7, 16.9]	27.8 [24.4, 31.4]
Living with biological father but not biological mother	16.8 [12.1, 22.9]	24.4 [18.8, 31.0]	13.9 [9.8, 19.5] E	31.2 [24.8, 38.5]
Living with both biological parents	9.5 [8.1, 11.1]	15.5 [13.4, 17.9]	9.6 [8.1, 11.5]	18.8 [16.7, 21.2]

^E High sampling variability; interpret estimate with caution.

DISCUSSION

Results reveal that approximately 40% of First Nations youth reported living with both biological parents at least most of the time. This living arrangement appears to be protective with respect to the emotional well-being of First Nations youth. First Nations youth living with both biological parents felt lonely or sad, blue, or depressed less often and reported feeling loved more often than did First Nations youth who did not live with both biological parents. These findings are consistent with past research that has found positive effects for youth living in homes with more than one adult (see, for example, Astone & McLanahan, 1991; Covey & Tam, 1990; Dornbusch et al., 1985; Parish, 1991).

Although First Nations youth being raised by either a biological father or a biological mother did not differ greatly in their reported well-being, with the exception that youth from a family with only their biological mother reported feeling more loved, results do suggest that single-mother families have great support. First Nations youth who reported living with only their biological mother most of the time also lived with other extended family members, such as grandparents, uncles, aunts, or cousins, more often than those who reported living with only their biological father.

First Nations youth live with many household members at least half of the time. These results suggest that First Nations youth appear to be well surrounded by family and/or community members. Unlike previous findings, no link was observed between high household membership and negative effects on the emotional well-being of First Nations youth. Instead, the more worrisome findings were in regards to First Nations youth who reported living with only one other person. Nonetheless, high numbers of household members are consistent with findings that First Nations families are in great need of housing in order to prevent overcrowding.

It must be noted that the current research did not assess overcrowding (defined as more than one household member per room), nor did it look at household membership within one dwelling. Rather, it assessed how many people First Nations youth live with at least half of the time. Thus, it may be that First Nations youth reported living with many people because they live in more than one household. Future research might instead assess the number of household members living under the same roof.

Additionally, due to the cross-sectional nature of the survey design, it is unknown whether household

factors cause variation in well-being, or whether this association is due to a factor other than housing, such as level of household income. In response to this, results must be interpreted with caution.

CONCLUSIONS

In summary, First Nations youth living on-reserve or in northern communities live, on average, with at least four other people. Much of the time, the household makeup does not include both biological parents, as only 40% of First Nations youth live with both biological parents; rather, it appears that First Nations youth are sharing homes with one biological parent along with other children, youth, and adults.

The current research revealed that, irrespective of high or low household membership, First Nations youth living with only one biological parent or neither biological parent appear to be more vulnerable to difficulties with emotional well-being: these First Nations youth reported feeling less loved and feeling more lonely. These results suggest that First Nations youth who do not live with their both biological parents may be in need of greater support. Future research is necessary to explore what factors may help to increase the emotional well-being of First Nations youth in single-parent families.

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Chapter 20

Education and Language

EXECUTIVE SUMMARY

The First Nations Regional Health Survey (RHS) 2008/10 formed the basis of an analysis of school performance and language comprehension for First Nations youth 12 to 17 years of age living on-reserve or in northern First Nations communities. Useful indicators of school performance included attendance at school, grade repetition, attitudes towards school, and learning difficulties. With respect to language, approximately one-fifth (21.5%) of First Nations youth reported using a First Nations language in their daily life and approximately half of youth (56.3%) indicated being able to understand or speak a First Nations language. With respect to education, the majority of First Nations youth reported that they were currently attending school (87.7%). With respect to educational difficulties, 34.4% reported repeating a grade and 39.0% reported experiencing learning problems at school. The RHS results demonstrated various predictors of educational success. Educational success among youth (e.g., attend school, like school, no failed classes, no problems learning) was associated with good general health, eating a nutritious diet, feeling loved and balanced, having parents with higher educational achievement, avoiding substance use, and not currently being sexually active.

KEY FINDINGS

- More than one-fifth (21.5%, 95% CI [± 1.8]) of First Nations youth used a First Nations language in their daily life, and 56.3% (95% CI [± 3.7]) understood or spoke a First Nations language. Furthermore, 86.1% of First Nations youth felt that it was either “very important” or “somewhat important” to learn a First Nations language.
- More than four-fifths (85.7%) of First Nations youth felt that traditional cultural events were “very important” or “somewhat important” in their life.
- The majority of First Nations youth (87.7%) reported that they were currently attending school.
- The majority (80.5%) of First Nations youth reported that they liked school “very much” or “somewhat.”
- Compared to RHS 2002/03, fewer youth indicated repeating a grade (41.7% in RHS 2002/03 vs. 34.4% in 2008/10 RHS).
- Just under 40% (39.0%, 95% CI [± 2.2]) of First Nations youth reported having experienced learning problems at school, which is a decrease from 43.6% in RHS 2002/03.
- When asked about the highest level of education they would like to achieve:
 - o 23.4% aspired to a high school diploma
 - o 19.0% aspired to a college or CEGEP diploma
 - o 7.1% aspired to a trade or vocational certificate
 - o 23.8% aspired to an university degree
 - o 7.3% aspired to a professional degree
 - o 6.0% aspired to a master’s or doctoral degree
 - o 12.3% were unsure about their educational aspirations
- Among youth, signs of educational success (e.g., attend school, like school, no failed classes, no problems learning) were positively associated with :
 - o Good health
 - o Nutritious diet
 - o Higher parental education
 - o Avoid substance use
 - o Feel loved, but not lonely or stressed
 - o Not currently sexually active

INTRODUCTION

School performance can be measured most accurately by examining the attendance and non-attendance of students at school and the proportion of students who report repeating grades (Barro & Kolstad, 1987; Janosz, LeBlanc, Boulerice, & Tremblay, 1997; Jimerson, Anderson, & Whipple, 2002). Other useful indicators of school performance are students' attitudes toward school, such as liking or disliking school, and self-reported learning problems (Janosz, LeBlanc, Boulerice, & Tremblay, 1997; Miller & Plant, 1999). While these factors are not definitive in regards to the future educational aspirations of First Nations youth, they are important in predicting current school performance.

METHODS

First Nations youth aged 12 to 17 years were asked a series of questions about learning: language, traditional culture, and education.

With respect to language, youth were asked to indicate whether the language they use most often during the day is a First Nations language (yes/no). Youth were also asked whether they could understand or speak a First Nations language (yes/no). Finally youth were asked about their perceived value of learning a First Nations language (recoded into 2 categories: 'very/somewhat important' vs. not very important/not at all important').

With respect to traditional culture, youth were asked how much they value traditional cultural events in their life (recoded into 2 categories: 'very/somewhat important' vs. not very important/not at all important'), how often they participate in local community cultural events (recoded into 2 categories: 'sometimes/almost always' vs. 'rarely/never'). Finally youth were asked who helped them in understanding their culture (possible responses: grandparents, parents, aunts and uncles, community elders, other relatives, friends, school teachers, other community members).

In terms of the educational variables assessed, youth were asked whether they were currently in school (yes/no), whether they have ever skipped or advanced a grade (yes/no), whether they have ever repeated a grade (yes/no), and whether they have had any problems learning in school (yes/no). Youth who indicated having problems learning in school were then asked about the kind of problems they have had (response categories: reading, writing, math, short attention span, too many distractions, and difficulty understanding the teacher).

Youth were also asked how they feel about school (5 options: like school very much, like school somewhat, unsure, dislike school somewhat, dislike school very much) and about their highest level of desired educational attainment [high school, college/CEGEP diploma, trade or vocational certificate, university degree, professional degree, master's degree, doctoral degree, not sure].

Possible predictors of educational achievement were also explored including perceptions of general health (excellent/very good vs. poor/fair/good), highest level of parental education (did not complete high school vs. completed high school vs. completed post-secondary school), current smoking status (yes/no), heavy drinking status (defined as: 5 or more drinks per sitting at least once a month for 12 months – among those who indicated alcohol consumption in the past 12 months) (yes/no), cannabis use in the past 12 months (yes/no), other drug use in the past 12 months (includes non-prescription use of cocaine, amphetamines, inhalants, sedatives/sleeping pills, hallucinogens, and opioids) (yes/no), and current sexual activity (yes/no). Other possible predictors explored were symptoms of depression (feeling sad, blue, or depressed for 2 weeks or more in a row in the past 12 months: yes/no), feelings of loneliness, stress and feeling loved (response options: not at all vs. moderately vs. quite a bit), and feelings of physical, mental, spiritual and emotional (most/all of the time vs. almost none of the time/some of the time).

RESULTS

Language Skill

More than one-fifth (21.5%) of First Nation youth reported that a First Nations language is the language they use most often in their daily life. More than half of First Nation youth can understand or speak a First Nations language [56.3% (95% CI [± 2.7])]. Furthermore, 86.1% of First Nations youth felt that it was "very important" or "somewhat important" to learn a First Nations language.

Traditional Knowledge

First Nations youth were asked who helped them to understand their culture. Grandparents and parents were the top two answers, 53.7% and 51.7%, respectively, followed by schoolteachers (31.2%), aunts and uncles (30.0%), community elders (22.5%), other relatives (22.3%), and friends (13.3%) (95% CIs [± 2.3], [± 2.0], [± 2.2], [± 2.1], [± 2.1], [± 1.9] and [± 1.8], respectively).

The vast majority (85.7%) of First Nations youth reported that they felt having traditional cultural events was “very important” or “somewhat important” in their life, and 74.2% of First Nations youth took part “always/ almost always” or “sometimes” in these events. The importance of traditional cultural events has increased among First Nations youth since RHS 2002/03, when only 54.8% of First Nations youth felt that having traditional cultural events in their life was important.

School Attendance

The majority of First Nations youth (87.7%) reported that they were currently attending school. A lower proportion of older youth reported attendance at school compared to younger youth: 95.3% for those aged 12 to 13 years, 90.3% for those aged 14 to 15 years, and 77.2% for those aged 16 to 17 years (95% CIs [±1.9], [±1.6], [±2.6], and [±3.4]).

Grade Repetition

Overall, 34.4% of First Nations youth reported having repeated a grade, compared to 41.7% in RHS 2002/03. Having repeated a grade tended to increase with age: 22.3% for those aged 12 to 13 years, 33.4% for those aged 14 to 15 years, and 47.7% for those aged 16 to 17 years (95% CIs [±2.6], [±2.0], [±2.5], and [±4.2]).

Grade Advancement

Approximately 10% (10.2%) of First Nations youth reported having advanced a grade as a result of high academic performance. This tended to increase with age as well: 7.2% for those aged 12 to 13 years, 10.3% for those aged 14 to 15 years, and 13.1% for those aged 16 to 17 years (95% CIs [±1.8], [±2.1], [±2.6] and [±3.7]).

Learning Difficulties

Just under 40% (39.0%, 95% CI [±2.2]) of First Nations youth reported having experienced learning problems at school, which is a decrease from 43.6% in RHS 2002/03. No association was observed between age and reported learning difficulties. Of those who indicated having problems learning at school, approximately half indicated that most of their learning problems are with math (52.8%). Other areas of learning problems indicated were: too many distractions (39.3%), reading (33.1%), writing (28.9%), difficulty understanding the teacher (28.1%), and a short attention span (20.6%) (95% CIs [±3.4], [±3.5], [±3.4], [±2.8], [±3.0] and [±2.7], respectively).

Perceptions of School

The majority of First Nations youth (80.5%, 95% CI [±1.7]) reported that they liked school “very much” or “somewhat”. The proportion of youth who indicated liking school decreased with age: 82.7% of youth 12 to 13 years, 80.7% of youth 14 to 15 years, and 77.8% of youth 16 to 17 years.

Educational Aspirations

Just over one-fifth (23.4%) of First Nations youth reported that the highest level of education they wanted to achieve was a high school diploma (see Figure 20.4). Just under one fifth (19.0%) reported wanting to achieve a college or CEGEP diploma; 7.1% reported wanting to achieve a trade or vocational certificate; 23.8% reported wanting to achieve a Bachelor’s university degree; 7.3% reported wanting to achieve a professional degree; and 6.0% reported wanting to achieve a Master’s or Doctoral degree. Some First Nations youth (12.3%) reported that they were unsure of their educational aspirations.

Predictors of Educational Success

Health Status and Dietary Intake

A higher proportion of youth who perceived their health as being very good or excellent were currently in school, and a lower proportion reported having repeated a grade or having problems learning in school, compared to youth with poor to fair health (see Table 20.1). In addition, a higher proportion of youth with very good to excellent health reported liking school very much, compared to youth with good to poor health. Finally, this group also reported higher educational aspirations; for example, a higher proportion of youth with very good to excellent health reported aspiring to complete a university education (26.4%), compared to those with poor to good health (18.9%).

Table 20.1. School Performance, by General Health

	Currently attending % [95% CI]	Repeated a grade % [95% CI]	Learning problems % [95% CI]
Excellent to very good health	89.5 [±2.7]	30.1 [±4.1]	32.4 [±2.5]
Poor to good health	84.2 [±2.3]	42.7 [±4.1]	52.0 [±3.3]

A higher proportion of youth who ‘sometimes to always’ ate a nutritious diet reported currently attending school (89.8% vs. 81.1%), liking school very much (37.5% vs.

27.9%), and strive to complete a university degree (25.5% vs. 20.1%), compared to youth who ‘never to rarely’ ate a nutritious diet. On the other hand, a lower proportion of those who sometime to always ate a balance diet reported repeating a grade (30.9% vs. 44.8%) or having problems learning in school (35.1% vs. 50.2%), compared to youth who ‘never to rarely’ ate a nutritious diet.

Parental Educational Attainment

A lower proportion of youth whose parents did not complete high school were currently enrolled in school, had repeated a grade, and reported learning difficulties, compared to youth whose parents completed high school or completed post-secondary education (see Table 20.2).

Table 20.2. School Performance of First Nations Youth, by Level of Education of Parents

	Currently attending % [95% CI]	Repeated a grade % [95% CI]	Learning problems % [95% CI]
Parents did not complete high school	82.6 [±4.3]	41.1 [±3.3]	38.4 [±4.1]
Parents completed high school	89.0 [±2.3]	29.5 [±3.9]	38.6 [±3.5]
Parents completed post-secondary education	93.0 [±1.6]	27.5 [±4.1]	39.5 [±3.7]

Psychosocial Factors

The proportion of youth who were currently attending school was higher among those who reported feeling more loved, less lonely, and less stressed, while the proportion of youth who repeated a grade or reported learning problems was lower.(see Table 20.3).

Table 20.3. School Performance of First Nations Youth, by Emotional Factors

General health	Currently attending % [95% CI]	Repeated a grade % [95% CI]	Learning problems % [95% CI]
	Yes	Yes	Yes
Feel lonely			
Not at all/ a little	88.2 [±1.8]	32.0 [±2.3]	36.5 [±2.1]
Moderate	91.7 [±4.5]	42.9 [±10.2]	48.9 [±9.2]
Quite a bit	83.0 [±6.1]	48.9 [±8.2]	56.3 [±7.6]
Feel loved			
Not at all/ a little	81.5 [±7.0]	42.8 [±6.3] ^E	47.8 [±6.9]
Moderate	85.4 [±7.0]	29.9 [±6.7]	46.1 [±7.6]
Quite a bit	88.7 [±2.0]	33.1 [±2.7]	37.0 [±2.3]
Feel stressed			
Not at all/ a little	88.1 [±2.5]	32.6 [±2.5]	35.9 [±2.3]
Moderate	92.5 [±3.1]	31.7 [±5.5]	46.5 [±6.1]
Quite a bit	84.6 [±3.9]	41.9 [±5.3]	51.3 [±5.5]

^EHigh sampling variability. Use figures with caution.

For the most part, the proportion of youth who reported attending school and liking school was higher among those who felt balanced (‘most or all of the time’) [physically, emotionally, mentally, and spiritually], compared to those who felt less balanced (‘none or some of the time’). In contrast the proportion of youth who repeated a grade and reported a learning difficulty was higher among youth who felt less balanced (‘none or some of the time’), compared to those who felt balanced (‘most of all of the time’).

A lower proportion of youth who reported feeling sad, blue or depressed for 2 weeks in a row reported that they were currently in school (82.7%, 95% CI [±4.7]) compared to youth who did not experience symptoms of depression (89.2%, 95% CI [±2.0]). On the other hand, a higher proportion of youth with symptoms of depression reported having learning difficulties (54.1%, 95% CI [±4.7]), compared to youth without symptoms of depression (31.9%, 95% CI [±2.3]).

Alcohol and Non-Prescription Drug Use

For the most part, a higher proportion of youth who used substances [i.e., current smoker, consume alcohol heavily (5 or more drinks per sitting at least once per month for 12 months), past 12 month cannabis use, past 12 month other drug use (i.e., cocaine, amphetamines, inhalants, sedatives/sleeping pills, hallucinogens, and opioids)] reported repeating a grade and having learning

problems, compared to youth who did not use substances. Those who did not use substances were more likely to report currently attending school and liking school, compared to youth who used substances (see Table 20.4).

Table 20.4. School Performance of First Nations Youth, by Substance Use

		Currently attending % [95% CI]	Repeated a grade % [95% CI]	Learning problems % [95% CI]	Like School 'very much'
Substance use		Yes	Yes	Yes	Yes
Current Smoker	Yes	76.5 [±3.5]	53.1 [±3.7]	47.4 [±3.7]	26.6 [±3.7]
	No	93.1 [±1.8]	25.4 [±2.9]	35.0 [±2.5]	39.4 [±2.7]
Heavy alcohol consumption	Yes	78.4 [±3.5]	49.7 [±4.5]	46.2 [±4.5]	22.1 [±4.7]
	No	85.4 [±3.7]	42.2 [±5.3]	44.4 [±5.3]	30.0 [±5.1]
Past year cannabis use	Yes	80.7 [±3.1]	45.5 [±3.9]	44.8 [±3.5]	27.2 [±3.7]
	No	92.0 [±2.0]	27.1 [±2.7]	34.7 [±2.5]	40.5 [±2.7]
Other drug use	Yes	80.2 [±5.1]	55.6 [±5.9]	48.3 [±6.5]	22.9 [±5.5]
	No	88.7 [±2.2]	31.7 [±2.5]	37.8 [±2.3]	36.9 [±2.3]

Sexual Activity

A higher proportion of First Nation youth who were sexually active reported that they had repeated a grade and had learning difficulties, compared to those who were not currently sexually active. In contrast, a higher proportion of those who were not sexually active reported currently attending school and liking school, compared to those who were currently sexually active (see Table 20.5).

Table 20.5. School Performance, by Sexual Activity

Sexually active	Currently attending % [95% CI]	Repeated a grade % [95% CI]	Learning problems % [95% CI]	Like School 'very much' % [95% CI]
	Yes	Yes	Yes	Yes
No	92.0 [±2.7]	27.2 [±2.7]	36.4 [±2.7]	40.4 [±2.7]
Yes	78.9 [±2.9]	48.5 [±3.3]	42.3 [±4.1]	25.5 [±4.1]

DISCUSSION

The majority of First Nation youth acknowledge the importance of learning a First Nations language and participating in First Nation cultural activities. Many of the youth practice what they preach – that is, many youth speak or understand a First Nations language and participate in cultural events. First Nations youth reported that it was most often their grandparents and parents who helped them to understand their First Nations culture. Teachers were

also identified as an important source of understanding First Nations culture, which highlights the importance

of having culturally competent teachers, teachers' aides, and other individuals within the school system.

The proportion of First Nations youth who were currently attending school decreased with increasing age. This seems to reflect an increasing high school dropout rate once attendance in school becomes non-compulsory. Although school attendance continues to be a concern, the proportion of youth who have repeated a grade has decreased since 2002/03 and a notable proportion (one-in-ten) of First Nations youth have advanced a grade as a result of high academic performance.

A sizeable proportion of First Nations students reported having experienced learning problems, particularly in the fields of writing, reading, and math. These statistics, essentially unchanged since RHS 2002/03, identify a critical issue in the education of First Nations youth. The problem areas noticed are essential skills needed to succeed in many technical and professional occupations. As significant proportions of First Nations youth also reported having experienced learning problems related to short attention spans and distractions, it may be necessary to evaluate the experience students have within their school setting in order to design methods to improve the learning environment. First Nations youth also reported having experienced learning problems due to not being able to understand the teacher, raising questions about teacher training, cultural competency, and other potential barriers to understanding the teacher.

The majority of First Nations youth reported liking school either "very much" or "somewhat". Despite this, a small proportion of First Nations youth reported the experience as negative. One could question whether

this minority are the students who choose to drop out of school later on, and what programs or policies might be adopted to reduce this tendency. Despite the dropout rate and reported learning difficulties being experienced by some First Nations youth, there seems to be an overall desire to learn. Most First Nations youth reported having educational aspirations beyond achieving a high school diploma. One could wonder whether meeting these educational aspirations, which are to some degree at odds with levels of actual educational achievement, requires the development of programs that go beyond those of the current school system. Debate about the effect of role models and career counseling could determine whether they may assist in making the educational aspirations of First Nations youth a reality.

The majority of First Nations youth reported that their overall health was “excellent” or “very good.” The data from RHS 2008/10 suggests there is a correlation between level of reported health and positive attitudes towards school, and level of reported health and level of educational aspirations. Given the correlations between health and education, it seems clear that health and education policies should be developed in concert.

Three key variables—alcohol consumption, smoking, and sexual activity—were examined in RHS 2002/03. These variables and a fourth—non-prescription drug use—were included in RHS 2008/10. These behavioural variables, which may be characterized as both peer- and society-influencing, tended to demonstrate correlations with level of school attendance and rate of grade repetition. Smoking, in particular, had a strong correlation with overall educational performance. The correlation between smoking and educational performance in First Nations youth is likely independent of smoking’s ultimate effects on long-term health, as it takes upwards of 20 to 40 years to manifest in chronic obstructive lung disease (Centers for Disease Control and Prevention, 2003), cancer (Villeneuve & Mao, 1994), and cardiovascular disease (Ambrose & Barua, 2004). The indirect consequences that smoking may have on overall health, including poor educational performance, must be considered, especially in First Nations youth. Poor educational performance and employability are both correlated with reduced long-term health outcomes (Marmot, 2007) for First Nations youth who are smokers during their school-age years. Cigarette smoking has been shown to correlate with various characteristics of educational performance. Smoking among First Nations youth may be considered one of the most easily addressable problems currently affecting this population. First Nations communities could institute policies such as reducing cigarette sales and distribution

of cigarettes to First Nations youth in order to reduce the prevalence of smoking in this group. Programs should be created to promote non-smoking among First Nations youth; such programs could prove to have a positive effect not only on the health of First Nations youth but also on their educational performance and overall well-being.

CONCLUSIONS

Overall, the 2008/10 revealed areas of improvements and areas of concern. Youth appear to want to be involved in cultural activities and to learn to speak/understand a First Nations language. With respect to more formal education, the majority of youth report being enrolled in school and liking school; in addition, rates of grade repetition – although high – have decreased since the 2003/03 RHS. One area of greater concern is the high number of youth who have problems learning in school. Fortunately the RHS demonstrated various predictors of greater educational performance. Youth were more likely to display signs of educational success (e.g., attend school, like school, no failed classes, no problems learning) if in good general health, eat a nutritious diet, feel loved and balanced, have parents with higher educational achievement, avoid substance use, and are not currently sexually active. Programs and policies aimed at improving school attendance and performance may need to consider and incorporate the above predictors for greater effectiveness.

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Chapter 21

Physical Activity and Nutrition

EXECUTIVE SUMMARY

There is a growing body of evidence that shows an increase in the proportion of children and youth who are overweight and obese—a trend that may be largely explained by a decrease in physical activity and a change in eating habits. This chapter utilizes data from the First Nations Regional Health Survey (RHS) 2008/10 to provide a snapshot of current physical activity and nutrition patterns of First Nations youth living on-reserve and in northern communities. The findings from RHS 2008/10 reveal that half of First Nations youth are considered “active” (49.3%), while the remaining are moderately active (22.6%) or inactive (28.1%). Findings also reveal that fewer than one-quarter of youth “always” or “almost always” consume a nutritious, balanced diet (23.7%); this proportion decreased with age. The importance of and interdependence between physical activity and nutrition is highlighted as they are both associated with a host of positive factors, not only physical, but psychosocial as well. A strategy for healthy living that incorporates and harmonizes physical activity and nutrition may aid in the development of interventions to assist First Nations youth in achieving and maintaining a healthy lifestyle.

KEY FINDINGS

- More than half (57.0%) of First Nations youth were of normal weight or underweight, while 30.0% were overweight and 13.0% were obese.
- Approximately half (49.3%) of First Nations youth were considered active.
- Walking was the most frequently reported physical activity participated in during the year prior to the survey, reported by 86.9% of First Nations youth. This was followed by running or jogging (60.7%); swimming (54.6%); competitive or team sports, such as hockey, basketball, baseball, lacrosse, and tennis (53.1%); bicycle riding or mountain biking (44.6%); using weights or exercise equipment (36.1%); skating (30.2%); and fishing (29.9%).
- 38.6% of First Nations youth spent more than 1.5 hours watching television on an average day, 27.0% spent more than 1.5 hours on the computer, and 29.7% spent more than 1.5 hours playing video games (all outside of school/work).
- Less than one-quarter (23.7%) of First Nations youth reported that they always or almost always ate a nutritious balanced diet, while 53.6% sometimes did and 22.7% rarely or never did.

INTRODUCTION

Obesity is related to metabolic or genetic factors (Dyck, Klump, & Tan, 2001); environmental factors, including improved technology and suburban environments favouring motorized vehicles (Craig, Russell, Cameron, & Bauman, 2004); and behavioural factors, including high fat and carbohydrate intake and lack of physical activity (Hanley, Harris, & Gittelsohn, 2000). Canadian trends show that total energy intake has increased via carbohydrate intake, particularly soft drink consumption, during a period when the physical demands of every day are decreasing. According to the findings of the Canadian Community Health Survey (CCHS), 26% of children and youth aged 2 to 17 years were overweight or obese (Shields, 2004). More specifically, the proportion of youth aged 12 to 17 years who are overweight or obese has increased over the past 25 years, with the obesity rate being tripled in 2004 compared to 1978–79 (Shields, 2004).

The prevalence of obesity is higher among Canadians of Aboriginal descent than among the general Canadian population (Young, Dean, Flett, & Wood-Steiman, 2000). In 2004, an estimated 41% of Canadian youth of Aboriginal descent were considered overweight or obese, which is approximately 2.5 times higher than the national average (Young et al., 2000). An energy imbalance contributes to being overweight or obese, and this imbalance may be a result of reduced energy expenditure and excess consumption of calories. This chapter examines physical activity and aspects of nutrition among First Nations youth and suggests recommendations to help the decision makers in First Nations communities and policy developers shape strategies for healthy living.

Regular physical activity has been linked to numerous health benefits, such as chronic disease prevention and improved psychosocial well-being. In children and youth, physical activity aids in promoting healthy growth and development, improves mental health by reducing stress, and increases self-esteem and physical competence (Janssen & LeBlanc, 2010). Long-term benefits of an active lifestyle include decreased risk of several chronic and physical conditions, including coronary heart disease, hypertension, obesity, type 2 diabetes, osteoporosis, certain site-specific cancers (such as colon and breast cancers), and functional limitation with aging (Janssen & LeBlanc, 2010; Warburton, Nicol, & Bredin, 2006).

Despite the importance of regular activity, Canadians in general still are not sufficiently active enough to benefit. In particular, activity levels among youth remain quite low. In recent years, guidelines recommending

amounts of daily physical activity required for optimal health in children and youth have been developed and revised. The most current guidelines recommend that youth aged 12 to 17 years should accumulate at least 60 minutes of moderate-to-vigorous physical activity daily (Warburton et al., 2006). Moreover, children and youth aged 2 to 17 years should aim to incorporate vigorous intensity and muscle-strengthening activities at least three days per week (Tremblay et al., 2011). According to the Canadian Fitness and Lifestyle Research Institute's Canadian Physical Activity Levels Among Youth (CANPLAY) study, only 12% of children and youth aged 5 to 19 years accumulated enough steps in 2007–09 to be considered sufficiently active (Canadian Fitness and Lifestyle Research Institute [CFLRI], 2009). The CANPLAY study indicates that physical activity levels, here measured as the number of steps taken daily, decline with increasing age. Youth aged 15 to 19 years take fewer daily steps than children aged 5 to 14 years (CFLRI, 2009). Recent data from the Canadian Health Measures Survey (CHMS) using accelerometers to measure activity levels among children and youth show a mere 7% of children and youth accumulate enough activity to meet national guidelines (Colley et al., 2011).

Eating habits and choice of diet are also important components for consideration. Although consistent data on the nutrition of First Nations youth is fairly limited, a national study of dietary habits explored nutritional patterns of youth in Canada (Garriguet, 2006). This study found that fruit and vegetable consumption among youth is relatively low, with an average of 4.5 servings per day. Additionally, the servings of milk products drop during teen years; one-third of youth consumed food prepared in a fast-food outlet the day before the survey; and 25% of all calories come from “other” foods outside of the four food groups, such as soft drinks, sugars, and oils and fats (Garriguet, 2006). Understanding aspects of dietary intake and nutritional choices are important considerations in the energy balance equation.

This chapter provides descriptive data on physical activity and nutritional behaviours of First Nations youth as measured by RHS 2008/10. These factors were explored independently and in correlation with age and sex. Additionally, these behaviours were examined in relation to a broader cultural framework that incorporates an individual's spiritual, emotional, mental, and physical well-being, as well as social and community factors. Such a framework is similar to a multi-faceted population health or ecological approach, which is commonly used when examining health issues. This approach takes into account individual factors, such as attitudes

and beliefs; social factors, such as social support; environmental factors, such as physical environment or geography; societal factors, including culture and community; and policy-related factors, such as at a band or government level. These factors are considered to have a collective effect on any given behaviour.

METHODS

The measures that have been calculated or derived for the purposes of this chapter are summarized below. For each of these analyses, sample weights were applied and relationships were tested using 95% confidence intervals surrounding the estimates.

Body mass index (BMI) was calculated using the following formula:

$$\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m)}^2}$$

For the purposes of these analyses, the cut-offs were based on age- and sex-specific international standards for categories of youth BMI.

Satisfaction with body weight. Youth were asked to indicate how satisfied they are with their body weight. Response options were: ‘very satisfied’, ‘somewhat satisfied’, ‘neither satisfied or dissatisfied’, ‘somewhat dissatisfied’, and ‘very dissatisfied’.

Physical activity. Level of physical activity was based on total energy expenditure (EE) calculated from the reported frequency and duration of physical activities identified in the twelve months prior to the survey. A metabolic equivalent value (MET value), which had been independently established (Ainsworth et al., 2000), was assigned to each activity [20 activities].

$$\text{EE} = \sum(\text{Ni} * \text{Di} * \text{MET}_i / 365 \text{ days})$$

Ni = number of occasions of activity i in a year,
Di = average duration in hours of activity i, and
MET_i = a constant value for the
metabolic energy cost of activity i.

For this analysis, First Nations youth with energy expenditures of less than 1.5 kcal/kg/day were considered to be inactive; those with energy expenditures between 1.51 kcal/kg/day and 2.99 kcal/kg/day were considered to be moderately active; and those with energy expenditures of 3 kcal/kg/day or greater were considered to be active.

Nutrition. Youth were asked how frequently they eat a balanced, nutritious diet. Responses were categorized into: ‘almost always to always’, ‘sometimes’, ‘rarely to never’.

Covariates

Sedentary behaviour was assessed by asking youth how much time on an average day they spend watching TV, working at a computer, and playing video games (less 0.5 hours, 0.5 to 1.0 hour, 1.0 to 1.5 hours, and more than 1.5 hours).

Youth were asked how often they ate various traditional foods [land-based animals (moose, caribou, bear, deer, bison, etc.), fresh water fish, salt water fish, other water based foods (shellfish, eels, clams, seaweed, etc.), sea-based animals (whale, seal, etc.), game birds (goose, duck, etc.), small game (rabbit, muskrat), berries or other wild vegetation, bannok/fry bread, wild rice, corn soup) in the past 12 months. Responses options were: ‘not at all’, ‘a few times’, ‘often’. In addition, youth were asked how often, in the past 12 months, did someone share traditional foods with their household. Response options were: ‘often’, ‘sometimes’, or ‘never’.

Youth were asked how often they consumed various food/drinks [milk and milk products (e.g., yogurt, cheese), protein (beef, chicken, pork, fish, eggs, beans, tofu), vegetables, fruit (excluding fruit juice), bread/pasta/rice/other grains, water, juice, soft drinks/pop, fast food (e.g., burgers, pizza, hotdogs, french fries), sweets (e.g., candy, cookies, cake). Response options were: ‘several times a day’, ‘once a day’, ‘a few times a week’, ‘about once a week’, and ‘never/hardly ever’.

Participated in various extracurricular activities was assessed (sport teams or lessons, music groups or lessons, and traditional singing, drumming, or dancing groups or lessons). Response options were: ‘4 times or more per week’, ‘1-3 times per week’, ‘less than once per week’, or ‘never’.

Youth were asked if they currently smoke cigarettes (response options: ‘yes, daily’, ‘yes, occasionally’, and ‘no’) and if they have consumed alcohol in the past year (yes/no).

Youth were asked if they have had any problems learning in school (yes/no).

Youth reported how often they felt balanced in their physical, emotional, mental, and spiritual lives, on a scale ranging from 1 (“almost none of the time”) to 4 (“all of the time”).

Levels of mastery were measured using the Self-Mastery Scale (Pearlin & Schooler, 1978). The scale comprises seven statements for which survey participants rated their agreement on a scale ranging from 0 (“strongly disagree”) to 4 (“strongly agree”). Examples of statements are “I can do just about anything I really set my mind to”

and “I have control over the things that happen to me.” Scores were summed, including items that were reverse-scored, for a minimum of 0 and a maximum of 28, with higher values indicating higher levels of mastery.

Finally, youth were asked whether they viewed the following as strengths in their community (family values, social connections, traditional ceremonial activities, good leisure/recreation facilities, use of First Nations language, natural environment, strong leadership, awareness of First Nations culture, community/health programs, low rates of suicide/crime/drug abuse, elders, educational and training opportunities, and strong economy).

Differences between estimates were tested for statistical significance, which was established at $p < 0.05$.

RESULTS

Body mass index. In RHS 2008/10, 57.0% of First Nations youth aged 12 to 17 years were of normal weight or underweight. Almost one-third (30.0%) of First Nations youth were overweight, and 13.0% were obese. These proportions have not changed significantly since RHS 2002/03 (First Nations Information Governance Committee, 2005). Comparatively, 20% of youth aged 12 to 17 years in the general Canadian population were considered overweight and 9% were considered obese (Shields, 2006). Among First Nations youth, there were no gender or age differences observed.

Satisfaction with body weight. First Nations youth were also asked about their degree of satisfaction with their weight. Just under one-third (32.7%) were very satisfied, 36.1% were somewhat satisfied, 14.5% were neither satisfied nor dissatisfied, 10.1% were somewhat dissatisfied, and 6.6% were very dissatisfied. More boys reported being very satisfied with their weight, whereas more girls reported being either somewhat or very dissatisfied with their weight.

Given the high prevalence of obesity among First Nations youth, information on the modifiable and potential protective factors, such as physical activity and diet, and their role in reducing obesity is important. The results in this chapter focused on physical activity levels and dietary information of First Nations youth.

Physical Activity

Based on the findings of RHS 2008/10, half (49.3%) of First Nations youth were considered active, 22.6% were considered moderately

active and 28.1% were considered inactive.

A higher proportion of First Nations boys (56.6%) than girls (41.5%) were considered active.

Types of physical activities. Walking was the most frequently reported physical activity participated in during the year prior to the survey, as reported by 86.9% of First Nations youth. This was followed by running or jogging (60.7%); swimming (54.6%); competitive or team sports, such as hockey, basketball, baseball, lacrosse, and tennis (53.1%); bicycle riding or mountain biking (44.6%); using weights or exercise equipment (36.1%); skating (30.2%); and fishing (29.9%). Fewer than one-quarter of First Nations youth reported participating in berry-picking or other food gathering (24.3%); dancing, including aerobic, traditional, and modern dancing, for example (23.7%); gardening or yard work (19.7%); hunting or trapping (19.3%); hiking (19.3%); skiing or snowboarding (17.0%); or bowling (16.3%). Less than one-sixth of First Nations youth reported participating in golf (14.3%), canoeing or kayaking (12.3%), aerobics or fitness classes (6.9%), snowshoeing (6.5%), or martial arts (6.1%). In general, the proportions of First Nations youth who reported participating in many of these types of physical activities decreased in the period between RHS 2002/03 and RHS 2008/10. Participation in walking, fishing, snowshoeing, golfing, bowling, skiing, using weights or exercise equipment, and martial arts remained relatively constant during the same period.

Table 21.1 summarizes the gender differences associated with participating in certain physical activities and sports. A greater proportion of boys participated in competitive team sports, bicycle riding or mountain biking, using weights or exercise equipment, fishing, skating, hunting or trapping, gardening or yard work, hiking, golfing, and skiing or snowboarding. On the other hand, a greater proportion of girls participated in walking and dancing.

Table 21.1. Proportion of First Nations Youth who Participated in Physical Activity, by Age and Gender

	Gender		Age group	
	Boys (%)	Girls (%)	12–14 (%)	15–17 (%)
Walking	83.3	90.6*	85.4	88.3
Running or jogging	63.1	58.2	63.7	57.7
Competitive or team sports (e.g., hockey, basketball, baseball, lacrosse, tennis)	59.5*	46.4	56.1	50.0
Swimming	54.0	55.3	61.2*	48.1
Bicycling riding or mountain biking	50.6*	38.2	50.4*	38.8
Weights, exercise equipment	46.0*	25.7	31.5	40.7*
Fishing	40.0*	19.3	32.6*	27.0
Skating	37.4*	22.6	35.9*	24.4
Hunting, trapping	30.4*	7.7	19.4	19.2
Gardening, yard work	23.6*	15.6	19.9	19.5
Berry picking or other food gathering	22.0	26.6	28.5*	19.9
Hiking	21.9*	16.5	18.8	19.7*
Golfing	21.1*	7.3	15.8	12.8
Skiing or Snowboarding	19.8*	14.1	20.7*	13.2
Bowling	17.0	15.5	17.7	14.9
Canoeing or kayaking	14.0	10.5	12.7	11.8
Dancing (aerobic, traditional, modern, etc.)	13.6	34.4*	24.9	22.5
Snowshoeing	7.3	5.7	8.3*	4.7
Martial arts	7.3	4.9	6.1	6.1
Aerobics or fitness classes	5.3	8.6	7.4	6.4

* Indicates a significantly higher proportion

Similarly, age-related differences were discovered with participation in certain physical activities and sports (see Table 21.1). A greater proportion of younger First Nations youth—those aged 12 to 14 years—reported that they had participated in swimming, fishing, skating, berry picking or other food gathering, skiing or snowboarding, and snowshoeing in the year prior to the survey than had older First Nations youth—those aged 15 to 17 years. In contrast, a greater proportion of older youth than younger youth reported that they had participated in hiking in the year prior to the survey.

Sedentary activities. Findings revealed that 38.6% of First Nations youth reported spending more than 1.5 hours watching television on an average day, while 24.5% reported spending between an hour and 1.5 hours, and the remaining 37.0% reported spending an hour or less. Time spent at a computer was also reported: 27.0% of First Nations youth reported spending more than 1.5 hours per day, 19.8% reported spending between an hour and 1.5 hours, 23.5% spent 30 minutes to an hour, and 29.6% reported spending less than 30 minutes. Additionally, time spent playing video games was surveyed: 29.7% of First Nations youth reported spending more than 1.5 hours playing video games per day, 16.8% reported spending between an hour and 1.5 hours, 19.3% reported spending between 30 minutes and an hour, and 34.2% reported spending less than 30 minutes.

A greater proportion of First Nations girls than boys reported spending less than 30 minutes playing video games per day (56.8% vs. 16.7%). Also, a greater proportion of older First Nations youth than younger First Nations youth reported spending more than 1.5 hours on the computer per day (30.9% vs. 23.4%).

Nutrition

Balanced, nutritious diet. Roughly one-quarter (23.7%) of First Nations youth reported “always” or “almost always” eating a nutritious balanced diet, while 53.6% “sometimes” did. The remaining youth either “rarely” (18.0%) or “never” (4.7%) ate a nutritious, balanced diet. A slightly higher proportion of First Nations youth in RHS 2008/10 than in RHS 2002/03 reported that they “always” or “almost always” ate a nutritious, balanced diet, whereas slightly fewer “sometimes” did. A greater proportion of younger youth (aged 12 to 14) than older youth (aged 15 to 17) reported “always” or “almost always” eating a nutritious, balanced diet, whereas a greater proportion of older youth (aged 15 to 17) than younger youth (aged 12 to 14) reported having “rarely” done so (see Figure 21.1).

Figure 21.1. Proportion of First Nations Youth Consuming a Nutritious, Balanced Diet, by Age

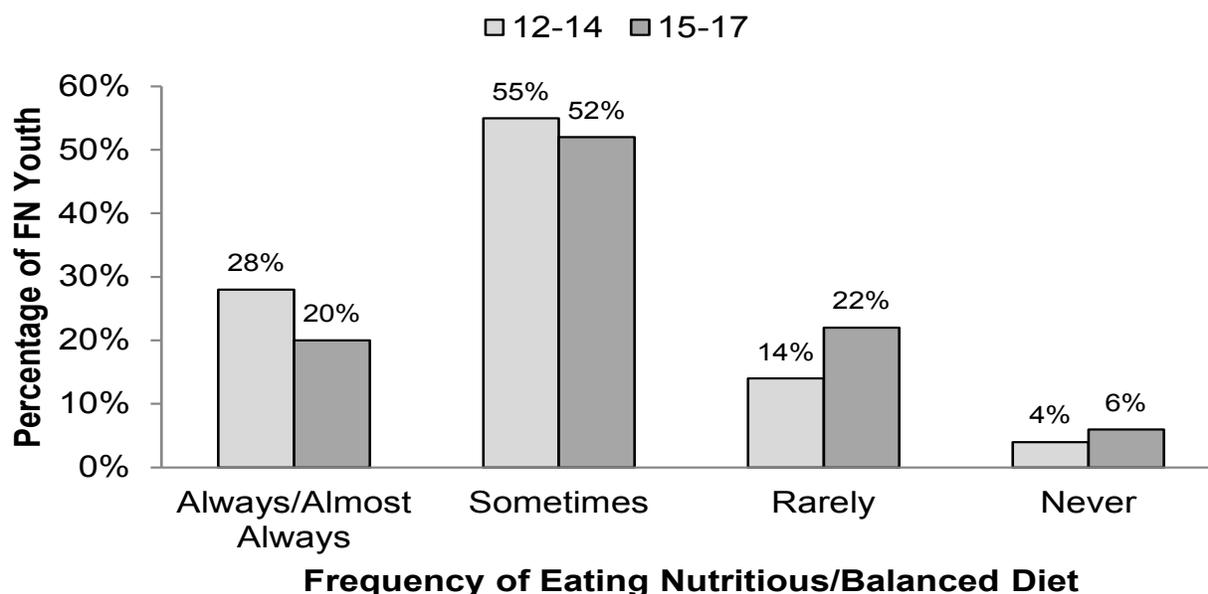


Table 21.2. Proportion of First Nations Youth Consuming Specific Food Items, by Frequency

	Several times per day (%)	Once per day (%)	Few times per week (%)	Once per week (%)	Never or hardly ever (%)
Milk and milk products (e.g., yogurt, cheese)	32.7	34.9	22.2	5.1	5.1
Protein (beef, chicken, pork, fish, eggs, beans, tofu)	31.9	39.5	23.4	3.7	1.5
Vegetables	24.0	32.0	27.6	8.1	8.3
Fruit (excluding fruit juice)	38.0	29.3	25.6	5.1	2.1
Bread, pasta, rice, and other grains	43.1	35.9	16.9	3.4	0.7 ^E
Water	72.3	17.0	6.9	1.6	2.2
Juice	55.4	24.1	14.8	3.3	2.3
Soft drinks or pop	25.9	27.4	28.4	10.8	7.6
Fast food (e.g., burgers, pizza, hotdogs, French fries)	6.5	11.0	39.0	28.8	14.7
Sweets (e.g., candy, cookies, cake)	10.9	17.3	35.0	20.4	16.3

^E High sampling variability; use figures with caution.

Types of foods consumed. In addition to asking about the consumption of a nutritious, balanced diet, RHS 2008/10 asked First Nations youth to report on their consumption of specific food items. Table 21.2 summarizes each food item by frequency of consumption.

No gender differences were observed in the frequency of consumption of potentially less nutritious foods (pop, fast food, sweets). One age difference was observed; frequent consumption (several times a day) of soft drinks was greater among First Nations youth aged 15 to 17 years than it was among First Nations youth aged 12 to 14 years.

Table 21.3. Proportion of First Nations Youth Consuming Traditional Food Items, by Frequency

	Not at all (%)	A few times (%)	Often (%)
Land based animals (e.g., moose, caribou, bear, deer, bison, etc.)	25.8	51.2	23.0
Small game (e.g., rabbit, muskrat, etc.)	72.1	21.4	6.5
Freshwater fish	41.9	42.7	15.4
Saltwater fish	81.7	14.9	3.4
Other water based foods (e.g., shellfish, eels, etc.)	86.3	11.6	2.1
Sea-based animals	97.4	1.9 ^E	0.8 ^E
Game birds (e.g., goose, duck, etc.)	63.4	28.4	8.2
Berries or other wild vegetation	27.7	52.8	19.5
Bannock, fry bread	12.0	47.8	40.2
Wild rice	66.6	26.6	6.8
Corn soup	74.6	19.1	6.3

^E High sampling variability; use figures with caution.

Sharing traditional foods. Just over one-quarter (27.1%) of First Nations youth reported that someone in their household had “often” shared traditional foods with them in the 12 months prior to the survey; the remaining youth had shared traditional food sometimes (60.4%) or never (12.5%). These numbers were very similar to those reported in RHS 2002/03.

Consumption of traditional foods. Table 21.3 summarizes each traditional food item by frequency of consumption. Some differences over the period of time between RHS 2002/03 and RHS 2008/10 regarding the consumption of these foods were discovered; for example, in RHS 2008/10 a slightly lower proportion of youth “often” consumed berries and wild vegetation, and bannock or fry bread.

Physical Activity and Nutrition in a Broader Cultural Perspective

This section examines the relationships of physical activity and nutrition to elements within a broader cultural perspective, such as an individual’s health behaviours, social environment, and community.

Physical activity

With only half (49.3%) of the First Nations youth population considered ‘active’, understanding factors associated with greater activity is important. For the purpose of this chapter, individual factors

were divided into two categories: factors related to general health and factors related to mental health.

The proportion of youth who were physically active was higher among those who:

- considered themselves to be in excellent health (55.3% were active) or very good health (52.4% were active), compared to those in who considered their health to be good (42.6%), fair (34.3%), or poor (39.4%);
- eat a nutritious, balanced diet ‘sometimes to always’ (52.8% were active) vs. those who eat a balanced diet ‘rarely to never’ (39.2%)
- were of normal weight/underweight (52.3%) or overweight (49.1%), compared to those who were obese (43.2%);
- were non-smokers (53.4%) or smoke occasionally (51.1%), compared to those who smoke daily (37.6%);
- did not consume alcohol in the past 12 months (51.7% were active) vs. those who did consume alcohol (46.0% active);
- participated in sports teams or lessons outside of school at least once a week: never participated in sports (34.9% were active), participated less than once per week (44.7% were active), participated 1-3 times per week (63.4% were active), and participated 4 or more times per week (68.5% were active);
- consumed milk products at least once per day (52.5% were active) vs. those who did so less often (43.2%);
- consumed protein foods at least once per day (51.8% were active) vs. those who did so less often (43.7%);
- ate fruit at least once per day (54.1% were active) vs. those who did so less often (40.5%);
- drank water at least once per day (51.4%) vs. those who did so less often (34.0%);
- drank pop several times a day (43.5% were active) vs. those who did so less often (e.g., once per week, 53.7% were active);
- ate fast food several times a day (38.1% were active) vs. those who did so less often (e.g., once per week, 49.9% were active);
- ate sweets several times a day (40.9% were active)

vs. those who did so less often (e.g., once per week, 50.9% were active);

- ate berries or other vegetation ‘often’ in the past year (60.0% were active), compared to those who never did (42.9%) or those who did so a few times (49.3%);
- ate fry bread/bannock ‘often’ in the past year (53.9% were active), compared to those who never did (39.3%) or those who did so a few times (48.3%);

Additionally, the association between physical activity and mental health variables were explored. The proportion of youth who were physically active was higher among those who:

- have never thought about suicide (51.8% were active) vs. those who have (42.9%);
- reported feeling physically balanced ‘most or all of the time’ (54.9% were active) vs. those who feel balanced ‘none or some of the time’ (33.4% were active). This pattern of results was also revealed for mental (55.0% vs. 39.4% active), spiritual (55.3% vs. 40.7% active) and emotional balance (53.8% vs. 41.8% active);
- perceived strengths in their community such as traditional ceremonial activities (e.g. powwows), social connections, presence of elders, awareness of First Nations culture, education and training opportunities, good leisure or recreational facilities, and community/health programs.

In addition, physically active youth had higher mean Mastery scores (M = 19.6) compared to youth were moderately active (M = 18.6) or inactive (M = 18.3).

Nutrition

As mentioned earlier, 23.7% of First Nations youth reported that they “always” or “almost always” ate a nutritious, balanced diet, while 53.6% “sometimes” did. Again, individual factors were categorized as those related to general health and those related to mental health. Regarding general health factors, the proportion of youth who ‘always/almost always’ ate nutritiously was higher among those who:

- considered themselves to be in excellent health (41.7% ate nutritiously), compared to those who are in very good (21.9%), good (9.3%), fair (8.2%), or poor health (statistic suppressed);
- who were underweight/normal weight or overweight

(24.6%), compared to those who were obese (19.0%);

- did not consume alcohol in the past 12 months (28.7% ate nutritiously) vs. those who did consume alcohol (16.1%);
- were non-smokers (28.2% ate nutritiously), compared to those who smoke daily (14.5%) or smoke occasionally (17.4%).

Additionally, regarding mental health factors, the proportion of youth who ‘always/almost always’ ate nutritiously was higher among those who:

- never had thoughts about suicide (26.2% ate nutritiously), compared to those who have (11.7%);
- reported feeling physically balanced ‘most or all of the time’ (27.2% ate nutritiously) vs. those who feel balanced ‘none or some of the time’ (13.3%). This pattern of results was also revealed for mental (28.7% vs. 14.5% ate nutritiously), spiritual (29.9% vs. 14.5% ate nutritiously) and emotional balance (29.0% vs. 13.9% ate nutritiously);
- did not indicate having learning problems at school (29.7% ate nutritiously) vs. those who have had problems learning in school (15.6% ate nutritiously).

Finally, results revealed that youth who always or almost always ate nutritiously had higher mean Mastery scores (M = 20.5) compared to youth who sometimes (M = 18.9), rarely (M = 17.8) or never (M = 18.0) eat a nutritious diet.

Table 21.4 summarizes the key findings of this section according to a cultural framework of the total person and total environment. In addition to the associations of physical activity and nutrition with individual factors described in the first two sections, significant associations with physical and mental health and societal and social factors are described.

Table 21.4. Association between Key Indicators and Physical Activity and Nutrition

	Physical Activity	Nutrition
Individual factors		
Age	x	✓
Gender	✓	x
Health factors		
General health status	✓	✓
Eat a balanced diet	✓	n/a
Cigarette smoking	✓	✓
Alcohol consumption	✓	✓
TV watching	x	x
Computer Use	x	x
Internet Use	x	x
BMI	✓	✓
Participating on sports teams	✓	x
Mental health factors		
Suicide ideation	✓	✓
Life in balance	✓	✓
Mastery	✓	✓
Problems learning at school	x	✓
Societal factors		
Community strengths	✓	x

Note. ✓ = Significant association at the $p = .05$ level. x = No observed association. n/a = Not applicable

DISCUSSION

In Canada, childhood obesity has increased over time (Shields, 2006; Tremblay & Willms, 2000). This trend is particularly worrisome given its consequences (Ball & McCargar, 2003). Current research also indicates that aerobic fitness levels are related to children's health in a dose-response relationship (Anderssen et al., 2007). Findings from the recent CHMS indicate that fitness levels for children and adolescents were lower in the period between 2007 and 2009 than they were in 1981 (Tremblay, Shields, et al., 2010). Flexibility and muscular strength scores were also lower in the period between 2007 and 2009, while mean BMI, waist circumference, and the sum of skinfolds were higher (Tremblay, Shields, et al., 2010).

In children and youth, physical activity contributes to healthy growth and development, improved mental health through the reduction of stress, increased self-esteem, and physical competence (Janssen & LeBlanc, 2010). Physical inactivity is an important public health

concern, given that it is a modifiable risk factor for various chronic diseases, including cardiovascular disease, type 2 diabetes, osteoporosis, hypertension, certain cancers (such as colon and breast cancers), obesity, and functional limitation with aging (Warburton et al., 2006).

Physical activity rates among youth have traditionally been measured via self-reported data. However, in recent years, objective measures of physical activity among Canadian youth have been conducted using pedometers and accelerometers. For example, the CANPLAY study examines daily steps taken as measured by pedometers. This study found that girls take fewer steps than boys and that the number of steps taken daily declines with age (CFLRI, 2009). Relatively few children and youth aged 5 to 19 years accumulated enough steps in the period between 2007 and 2009 to be considered sufficiently active (CFLRI, 2009). Recent data from the CHMS using accelerometers to measure activity levels among children and youth show a mere 7% of children and youth accumulate enough activity to meet national guidelines (Colley et al., 2011). Revised guidelines in Canada recommend that for health benefits, children and adolescents aged 5 to 17 years should accumulate 60 minutes of moderate-to-vigorous physical activity each day (Tremblay et al., 2011). Evidence also suggests that they should engage in vigorous physical activity at least three days a week.

Although inactivity appears among all youth, it is more prevalent in certain segments of the population, such as girls and older youth (CFLRI, 2008b). Additionally, certain types of activities are more popular among certain groups. For example, results from this chapter demonstrated that a greater proportion of First Nations boys than of First Nations girls of the same age participated in activities that generally involved greater intensity, such as competitive team sports, including hockey, basketball, baseball, lacrosse, and tennis; bicycle riding or mountain biking; using weights or exercise equipment; fishing; skating; hunting or trapping; gardening or yard work; hiking; golfing; and skiing or snowboarding. On the other hand, more girls reported that they participated in walking and dancing. Differences in participation rates in activities were also found between younger and older youth.

Understanding the preferences for types and intensity of activities for various groups is an important consideration when developing physical activity strategies. For example, results from the CANPLAY pedometer study indicate that children who prefer only vigorous intensity activities or who prefer both vigorous and moderate intensity activities equally take more steps than those who prefer only moderate intensity

activities. The latter group also takes more steps than those who prefer neither type of activity (CFLRI, 2008b).

Health promotion efforts for youth can also recognize the value of all physical activities, including organized and unorganized activities, outdoor activity, or active travel. The CANPLAY study examined time spent in some of these types of activities during the period between the end of school and dinner. The findings indicate that children and youth who play outdoors during this time take about 2,000 more steps—which translates roughly into about 20 minutes of activity—than those who do not play outdoors during this time, and children who participate in activities during this time also take more steps than those who do not participate (CFLRI, 2008a). Other research shows that time spent outdoors is positively correlated with physical activity levels and was a major factor differentiating between children who are active enough and those who are not (Centers for Disease Control and Prevention, 2000). Tailoring the types of physical activities preferred by certain age and gender groups and that are culturally appropriate, such as the inclusion of traditional physical activities, may be important when determining policies and strategies targeting certain groups.

In addition to recognizing the importance of physical activity, it is also important to reduce the level of sedentary activity. Sedentary behaviour is associated with obesity and metabolic disease, independent of moderate-to-vigorous activity (Andersen, Crespo, Bartlett, Cheskin, & Pratt, 1998; Crespo et al., 2001; Janssen, Katzmarzyk, Boyce, King, & Pickett, 2004). A recent review article examined methods for assessing sedentary behaviour and associations between sedentary behaviours and major health outcomes among children (Tremblay, Colley, Saunders, Healy, & Owen, 2010). These researchers noted challenges regarding the measurement of sedentary behaviours given that these activities may be sporadic and varied throughout the day (Tremblay, Colley, et al. 2010); therefore, they recommend objective measures similar to those used to measure physical activity to measure sedentary behaviour. The recent CHMS has measured sedentary time of youth via accelerometers and indicates that daily sedentary time for Canadian children and youth averages 8.6 hours or 62% of their waking hours, increasing with increasing age (Colley et al., 2011). Results from this chapter indicate that screen time varies by gender and by age among First Nations youth. Monitoring and regulating the time spent on these types of activities could be a useful component of a strategy aimed at healthy living.

Poor quality diet is an important component of the energy

balance equation. Findings in this chapter show that only one-quarter of First Nations youth always or almost always eat a nutritious balanced diet, and the proportion decreases among older youth. There may be several explanations for this decline, including preferences and potential barriers, such as access, lack of time, lack of support, and food insecurity. Further understanding of the reasons for this decline with age, as well as identifying dietary intake, may be particularly useful. For example, the nutrition component of the 2004 CCHS provides some interesting data on nutritional patterns of Canadian adolescents. The 2004 study indicated that fruit and vegetable consumption among adolescents is relatively low, with an average of 4.5 servings per day. Additionally, the servings of milk products drop during teen years; one-third of youth ate food prepared in a fast-food outlet the day before the survey, and 25% of all calories come from “other” foods outside of the four food groups, including soft drinks, sugars, and oils and fats (Garriguet, 2006). Indeed, the RHS 2008/10 data is cause for concern, in that the majority of First Nations youth consume soft drinks on a regular basis, at least weekly and at least once a day, and eat fast food at least weekly. However, the majority of youth have had traditional foods shared with them in their household, and consumption of some traditional foods is associated with being active.

A strategy for healthy living that incorporates physical activity and nutritional aspects for First Nations youth should understand and target interventions to assist individuals in certain groups to adopt and maintain healthy lifestyles. Independent physical activity and nutrition strategies are useful, but a common framework that harmonizes physical activity and nutrition and incorporates other health behaviours as well may help in developing interventions for specific population segments, such as girls and older youth (World Health Organization, 2004). The association between physical activity and nutrition in this chapter suggests that promoting positive health behaviours in one lifestyle domain may lead to overall healthier lifestyle changes. It is important that these strategies be culturally and gender appropriate for the First Nations population. For example, strategies related to diet must include consideration of traditional foods, and strategies for physical activity must consider various types and forms of physical activity, including traditional activities.

CONCLUSIONS

A key purpose of this chapter was to understand physical activity and nutrition for First Nations youth living in First Nations communities in the context

of a cultural framework. An ecological or cultural framework can be comprised of physiological factors, such as growth and development; psychological factors, such as motivation, confidence, and self-efficacy; socio-cultural factors, such as the role of family and one's socio-economic status; and ecological factors, such as the availability of opportunities to be active and to obtain nutritious foods, geography, and climate (Lindquist, Reynolds, & Goran, 1999). This chapter examined a host of factors at the individual, societal, and community level that are associated with physical activity and nutrition. As examples, results from RHS 2008/10 indicate that factors such as not smoking, not drinking feeling in balance physically, emotionally, mentally, and spiritually, and the absence of suicidal thoughts were associated with being active and eating healthily.

Suicide is an important issue among Aboriginal youth, whose rates of suicide are higher than those of other youth in Canada (Advisory Group on Suicide Prevention, 2003). The finding that the absence of suicidal thoughts is associated with being active and consuming a nutritious, balanced diet may suggest that a healthy lifestyle could contribute to the resilience of youth and therefore would be a consideration for developing a strategy to combat this issue. It is critically important when promoting strategies to understand barriers relevant to this population (Thompson et al., 2001).

Data from RHS 2008/10 provided a snapshot of current physical activity and nutrition patterns of First Nations youth on-reserve and in northern communities and provided useful information and evidence for informing strategies on these key public health issues. To supplement the self-reported data collected through the RHS, collection of baseline data involving details on food intake and diet quality, including objective measures of energy intake, and its determinants would be valuable. Moreover, monitoring of physical activity levels on a regular basis is important and could be expanded to include total physical activity across domains and objective measurement of activity, including data collection through pedometers or accelerometers. Objective anthropometric measures such as height, weight, and waist girth for this population would also be useful. Consistent data would be important for identifying and assessing the success of policies, strategies, and programs that would help shape the future health

of First Nations youth by examining changes over time. This type of data could help to supplement the data collected through the questionnaire survey.

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Chapter 22

Substance Use and Misuse

EXECUTIVE SUMMARY

This chapter presents results from the First Nations Regional Health Survey (RHS) 2008/10 on licit and illicit drug use among youth living on-reserve and in northern communities. Data from the most recent RHS were compared with findings from the earlier RHS (2002/03) and with data on the general Canadian population (Health Canada, 2009a). Findings revealed that First Nations youth living in First Nations communities are more likely to be current smokers, especially daily smokers. About 60% of First Nations youth reported abstinence from alcohol; rates of abstinence in the past 12 months were higher among males than among females (64.7% vs. 57.1%). The prevalence of abstinence in the past 12 months among First Nations youth was greater than that observed among youth in the general Canadian population. However, of those First Nations youth who did consume alcohol, a higher proportion engaged in binge drinking compared to youth in the general Canadian population (51.4% vs. 39%). Results revealed some potentially protective factors with respect to use of substances. For instance, a lower proportion of First Nations youth whose biological parents are living together reported smoking, consuming alcohol in the 12 months prior to the survey, and using cannabis in the same time period, compared to youth whose parents are no longer together. Additionally, First Nations youth whose parents completed high school or pursued post-secondary education were less likely to smoke cigarettes than youth whose parents did not complete high school.

KEY FINDINGS

Smoking

- One-in-three (33.1%) First Nations youth were current smokers, compared to about 8% of youth in the general Canadian population.
- By 15-17 years of age, 29.6% of First Nations youth are daily smokers.
- Daily smoking was more common among First Nations females than among First Nations males (24.5% vs. 16.4%, respectively).
- Daily smoking decreased from 25.6% in 2002/03 to 20.4% in 2008/10.
- About 60% of First Nations youth reported living in a smoke-free home.
- The prevalence of smoking was high among youth whose biological parents were no longer together, whose parents or did not complete high school, and among youth who lived with many other household members.
- Ex-smokers reported that they quit smoking in order to improve their health, tending most often to use abrupt cessation—going cold turkey.

Alcohol Use

- About 60% of youth reported abstinence from alcohol; rates of abstinence were higher among males than among females (64.7% vs. 57.1%).
- The prevalence of abstinence among First Nations youth was greater than that observed among youth in the general Canadian population (61% vs. 47%).
- Of the First Nations youth who consumed alcohol in the 12 months prior to RHS 2008/10, more than half (56%) reported frequent binge drinking (once a month or more)—a rate much higher than that observed among youth in the general Canadian population (39%).

Drug Use

- Of all First Nation youth, approximately one in three (36.2%) reported smoking cannabis in the 12 months prior to the survey, and one in ten (9.7%) reported smoking cannabis daily or almost daily.
- 8.9% of First Nations youth reported use of other illicit drugs (besides cannabis) in the past 12 months.
- The use of sedatives/sleeping pills increased from 0.8% in the RHS 2002/03 to 2.2% in the RHS 2008/10.

INTRODUCTION

First Nations youth are at especially high risk of substance misuse. Various factors – many unique to First Nations communities – contribute to creating this increased risk, including marginalization, discrimination, intergenerational trauma, poverty, isolation, and familial separation (Hasin & Beseler, 2009). Decreasing this risk is of great importance as early initiation and frequency of substance use among First Nations youth strongly predicts later difficulties related to substance abuse and dependency.

In comparison to youth in the general Canadian population, abstinence levels are higher among First Nations youth (First Nations Information Governance Committee, 2005). However, of those who do drink, First Nations youth are more likely to engage in risky use. The 2002/03 RHS revealed that two-thirds of First Nations youth drank alcohol in the past 12 months reported binge drinking on a monthly basis (64.6%; *binge drinking defined as 5 or more drinks per drinking occasion*)¹ and more than one-in-ten (12.6%) reported binge drinking on a weekly basis.

Cigarette smoking is a leading cause of preventable death in Western countries. With respect to First Nations, it is associated with the two leading causes of death, cardiovascular disease and cancer (Young, 1994). Youth smoking is concerning given its great risk for developing lifetime dependencies. RHS data collected in 2002–03 revealed that more than a third (37.8%) of First Nations youth aged 12 to 17 years were smokers. Rates of smoking were highest among female (vs. males) and those in their later teens (vs. early teens).

Cannabis appears to be the drug of choice – besides alcohol and tobacco use – among First Nation youth. The RHS 2002/03 (First Nations Information Governance Centre, 2007) revealed that one in every three youth (32.7%) in First Nations communities reported using cannabis in the previous 12 months (prevalence was comparable to that observed among youth (15 to 24 years) in the general Canadian population in 2004: 37%; Health Canada, 2007).

The misuse of psychoactive prescription drugs

¹ The National Institute on Alcohol Abuse and Alcoholism defines binge drinking as a pattern of drinking that brings a person's blood alcohol concentration (BAC) to 0.08 grams percent or above. This typically happens when men consume 5 or more drinks, and when women consume 4 or more drinks, in about 2 hours (National Institute of Alcohol Abuse and Alcoholism. NIAAA council approves definition of binge drinking. *NIAAA Newsletter* 2004; No. 3, p. 3. Available at http://pubs.niaaa.nih.gov/publications/Newsletter/winter2004/Newsletter_Number3.pdf. Accessed February, 2011.

and inhalants among First Nations youth has become an increasing concern in First Nations communities. Findings from RHS 2002/03 revealed that that 3.5% of First Nations youth had misused prescription opiates (codeine, morphine, or other opiates) and 0.8% had misused sedatives, downers or sleeping pills in the year prior to the survey.

Finally, there is some indication that higher rates of solvent and inhalant abuse occur among First Nations and Inuit youth (compared to general Canadian use; see Canadian Centre on Substance Abuse, 2006). The previous RHS revealed that 1.5% of First Nations youth reported past year inhalant use of glue, gas or paint. Other reports have found much higher estimates; for example, a 2003 report from Pauingassi First Nation in Manitoba concluded that half of the children under 18 and living on reserve abused solvents (O'Brien, 2006). Inconsistent estimates of solvent/inhalant use are likely a result of fluctuations in survey question wording – some surveys include less inclusive examples of solvent and inhalants.²

The purpose of the present chapter is to describe survey results from the First Nations Regional Health Survey (RHS 2008/10) on the prevalence, frequency, and heavy use of legal and illegal substances among First Nations youth living in First Nations communities. Substance use data are also compared to findings from RHS 2002/03 (First Nations Information Governance Committee, 2005) and to data from youth in the general Canadian population.

METHODS

This chapter uses a cultural framework to better understand substance use trends among First Nations youth: the RHS Cultural Framework focuses attention on the health of the total person in the total environment (Dumont, 2005) – taking into account demographics (age and gender), as well as socio-economic circumstances, number of household members, parental marital status, and parental education.

The findings of RHS 2008/10 are compared with data from RHS 2002/03 and contrasted with general population data provided by the 2008–09 Youth Smoking Survey (YSS). The YSS is a national biannual school-based survey conducted on behalf of Health Canada. The survey provides national data on smoking and drug and alcohol use among Canadian youth aged 12 to 17 years in all 10 provinces. The YSS

² For a discussion of definitions and examples of solvent and inhalant use see Canadian Center on Substance Abuse (2006). Youth Volatile Solvent Abuse. Available at: <http://www.ccsa.ca/2006%20CCSA%20Documents/ccsa-011326-2006.pdf>. Accessed February, 2011.

is not conducted within First Nations communities; thus it provides for useful comparison with the RHS.

In this chapter, current smokers were defined as those reporting daily or occasional smoking at the time of RHS 2008/10. If participants reported that they had not smoked in the past 12 months, they were asked whether they had smoked in the past. Those who identified as past smokers were asked to indicate their reason(s) for quitting from among eight choices and their method(s) for quitting from among nine choices.

Alcohol use was assessed by asking about use in the previous 12 months (yes/no). Respondents were considered abstinent from alcohol if they did not consume alcohol in the 12 months before the survey. Those who did indicate past-year alcohol consumption were also asked how often they binge drink, defined as the consumption of five or more drinks on one occasion. Here, heavy drinking, or frequent binge drinking, is defined as binge drinking once a month or more in the past 12 months.

Next, youth were asked whether they had used any of the following illicit drugs or misused a prescription drug in the past 12 months: cannabis; hallucinogens, including LSD, magic mushrooms, PCP, and Special K; amphetamines, including crystal meth, speed, and ecstasy; cocaine or crack; sedatives or sleeping pills without a prescription; illicit or prescription opioids, includes illicit opioid use, like heroin, and non-prescription use of codeine, methadone, morphine, etc.; and inhalants, such as solvents, glue, and gas. Youth were also asked whether they had sought treatment for drug use or addiction and whether they had sought treatment for inhalant use or addiction in their lifetime.

Common correlates of substance use were also assessed including, biological parental marital status (married, common law, not living together/separated, or divorced), highest level of biological parental education (did not complete high school, completed high school, completed high school and pursued post-secondary education), and household members (i.e., number of people youth live with at least half of the time).

In addition, with respect to rates of youth smoking, youth were also asked whether or not they live in a smoke-free home

RESULTS

Youth Smoking

Smoking is common among First Nations youth; one in three First Nations youth (33.1%, 95%

CI [30.9, 35.5]) were current smokers (daily or occasionally) and one in five (20.4%, 95% CI [18.6, 22.3]) were daily smokers. By 15 to 17 years of age, approximately one-third were daily smokers (see Table 22.1). The prevalence of daily smoking was higher among females than among males (see Table 22.1).

Although fewer First Nations males engaged in smoking (compared to females), those who did smoke reported smoking more cigarettes per day than did female smokers (a mean daily average of 6.7 cigarettes for males vs. 5.9 cigarettes for females). On average, First Nations youth reported having started to smoke at 13 years of age (13.1 years for males and 12.7 years for females).

Table 22.1. Proportion of First Nations Youth who Smoked Daily in the 12 Months Prior to RHS 2008/10, by Age and Gender (n = 4,652)

Daily smoking	% [95% CI]
All youth	20.4 [18.6, 22.3]
12–14 years	11.1 [9.3, 13.1]
15–17 years	29.6 [27.0, 32.4]
Females	24.5 [22.2, 26.9]
Males	16.4 [13.9, 19.2]

The proportion of First Nations youth who currently smoke (occasionally or daily) remains dramatically higher than the proportion of youth smokers in the general Canadian population (33.1% vs. 7.7%, respectively [Health Canada, 2009a]). When these data are stratified by age, fewer than 4% of youth aged 12 to 14 years in the general Canadian population reported being a current smoker, compared to 20.3% of First Nations youth. Similarly, only 13.5% of those in the general Canadian population aged 15 to 17 years were current smokers in 2008–09, compared to 45.7% of First Nations youth (Health Canada, 2009b).

In contrast to the pattern for First Nations youth, smoking was more common among males than among females in the general Canadian population (Compton, 2007). Rates of current smoking (occasional + daily) among First Nations in RHS 2002/3 (37.8%) and RHS 2008/10 (33.1%) were not significantly different (95% CIs [34.9, 40.8] and [30.9, 35.5], respectively); however, rates of daily smoking decreased from 25.6% to 20.4% in 2008/10 (95% CIs [22.9, 28.4] and [18.6, 22.3]).

Approximately 8% (8.5%, 95% CI: 7.1, 10.1) of First Nations youth were ex-smokers. Among ex-smokers, the most common motivation to quit was the pursuit

of a healthier lifestyle (43.1%). Other frequently cited reasons were respect for loved ones (20.3%), greater awareness of the ill effects of smoking on health (16.7%), and respect for the cultural and traditional significance of tobacco (12.3%). The most common cessation method among ex-smokers was abrupt cessation—going cold turkey and using will power (83%).

Smoking and the socio-economic circumstances of families

Abstinence from smoking was significantly higher among First Nations youth whose parents were married (73.0%) or living together in a common-law relationship (74.6%) than among youth whose parents were not living together due to separation (62.6%), divorce (56.7%), or the death of a parent (61.8%).

Abstinence from smoking was greater among youth who had at least one biological parent who graduated from high school (73.1%) or pursued a post-secondary education (72.4%) than it was among youth whose mother and father did not graduate from high school (60.3%), 95% CIs [69.6, 76.4], [68.0, 76.4], and [56.7, 63.7], respectively.

Abstinence from smoking was greatest among youth living in homes with four or five inhabitants (70.7%, 95% CI [67.5, 73.8]); the prevalence of abstinence decreased as the number of household inhabitants increased. For example, for First Nations youth living in a home with nine or more inhabitants, the rate of abstinence was 61.3% (95% CI [54.6, 67.7]). Overall, the findings of RHS 2008/10 indicate that 60.9% of First Nations youth lived in a smoke-free home. A higher proportion of youth who live in a smoke-free home reported abstinence from smoking compared to youth who do not live in a smoke-free home (73.2% vs. 57.3%).

Alcohol Use

Prevalence of use

Approximately three-fifths (61.0%) of First Nations youth were abstinent from alcohol in the 12 months prior to RHS 2008/10 (see Table 22.1). No change in abstinence was observed since the RHS 2002/03 (57.2%, 95% CI [54.7, 59.7]). First Nation male youth were more likely than females to have abstained from drinking alcohol in that time period (see Table 22.2).

In comparison to youth in the general Canadian population (47.0%; Health Canada, 2009b), First Nations youth are more likely to report past year abstinence from alcohol (61.0%).

Table 22.2. Abstinence Overall and by Sub-Group

	% Abstinent (95% CI)
Overall	61.0 [58.6, 63.4]
12–14 years	79.3 [76.7, 81.8]
15–17 years	42.7 [39.6, 45.8]
Females	57.1 [54.3, 60.0]
Males	64.7 [61.4, 67.8]

Frequency of use

Almost half of First Nations youth who consumed alcohol in the previous year reported consuming alcohol at least 2-3 times per month (see Table 22.2). No gender difference was observed in frequency of use. The tendency to consume alcohol more than monthly (2-3 times/month) and weekly (2-3 times/week) increased with age (see Table 22.3).

Table 22.3. Frequency of Alcohol Use Among Youth who Consumed Alcohol in the Past 12 Months: Overall and by Age-Group.

Frequency of Use	Overall (% , 95% CI)	12-14 yrs (% , 95% CI)	15-17 yrs (% , 95% CI)
2–3 times a year	31.7 [28.4, 35.3]	41.8 [34.8, 49.2]	28.5 [24.7, 32.6]
Once a month	26.2 [23.4, 29.2]	28.4 [22.5, 35.2]	25.5 [22.3, 29.1]
2–3 times a month	28.9 [25.8, 32.2]	19.2 [15.3, 23.9]	31.9 [28.2, 35.9]
2–3 times a week	12.2 [10.6, 14.1]	9.3 [6.8, 12.5]	13.2 [11.3, 15.4]
Daily	1.0 [0.6, 1.7]	F	F

F= suppressed due to small cell size or extreme sampling variability

Binge drinking

Approximately half of First Nations youth reported binge drinking monthly or more often. No statistical difference was observed since the previous RHS 2002/03 (51.4%, 95% CI [48.0, 54.8]).

Compared to youth in the general Canadian population (39%), a greater proportion of First Nations youth reported monthly binge drinking (51.4%).

Monthly or more binge drinking among First Nations youth increased significantly during the teen years (see Table 22.4). No gender differences were observed in frequency of binge drinking.

Table 22.4. Frequency of Binge Drinking (among youth who consumed alcohol in the past 12 months)†: Overall and by Age-Group

Frequency of Binge Drinking	Overall (% , 95% CI)	12-14 yrs (% , 95% CI)	15-17 yrs (% , 95% CI)
Never	22.3 [19.5, 25.3]	35.2 [29.3, 41.4]	17.8 [14.9, 21.2]
Less than once a month	26.3 [23.4, 29.4]	25.5 [20.9, 30.7]	26.7 [23.1, 30.6]
Once per month	19.4 [16.8, 22.3]	16.4 [11.8, 22.3]	20.4 [17.4, 23.8]
2–3 times per month	21.3 [18.8, 24.1]	15.0 [11.8, 18.9]	23.5 [20.3, 27.1]
Once per week or more	10.6 [9.2, 12.3]	8.0 [5.8, 10.7]	11.5 [9.7, 13.7]

† Binge drinking is defined here as consumption of 5 or more alcoholic drinks per sitting.

Treatment seeking

Approximately 6% (5.8% (95% CI: 4.7, 7.1) of First Nations youth reported they had sought treatment for alcohol abuse or addiction at some point in their lives

Alcohol use and parental marital status, parental level of education, and number of household members

Abstinence from alcohol was highest among First Nations youth whose biological parents are married or living in a common-law relationship and lowest among youth whose parents are divorced (see Table 22.5). Parental marital status did not have an impact on binge drinking.

No difference in binge drinking was observed between First Nations youth whose parents had less than a high school education and those whose parents completed high school (63.2% vs. 65.9%, 95% CIs [59.1, 67.0] and [62.0, 69.6]).

The number of household members with whom youth live with at least half of the time did not appear to have an impact on the prevalence of youth abstinence from alcohol or binge drinking.

Table 22.5. Prevalence of Abstinence from Alcohol by Youths' Biological Parent Marital Status

Biological Parent Marital Status	% Abstinent from Alcohol (95% CI)
Married	68.2 (64.7, 71.5)
Living together/common-law	70.4 (65.1, 75.3)
Separated	55.8 (52.5, 59.0)
Parent(s) deceased	51.8 (38.9, 64.5)
Divorced	41.6 (32.6, 51.3)

Cannabis Use

Overall, 36.2% (95% CI: 34.1, 38.4) of First Nations youth reported having used cannabis in the previous 12 months. No change was observed since the earlier RHS 2002/03 (32.7%, 95% CI: 30.2, 35.2).

Approximately 10% of the First Nations youth population reported smoking cannabis daily or almost daily (9.7%, 95% CI: 8.5, 11.1). No gender difference was found in the prevalence of past-year cannabis use, frequency of use, or daily/almost daily use (see Table 22.6).

The prevalence and frequency of almost daily/daily cannabis use in the 12-month period prior to RHS 2008/10 increased with age; 6.4% of youth aged 12 to 14 years used cannabis compared to 25.5% of youth 15 to 17 years of age.

Cannabis use and parental marital status, parental level of education, and number of household members

Abstinence from cannabis in the 12 months prior to the survey was higher among First Nations youth whose parents were married or living in a common-law relationship compared to youth whose parents were not living together/separated, divorced, or youth who had lost a parent(s).

Level of parental education—that is, whether a parent had less than high school, high school, or more than a high school education—was not linked with the prevalence of cannabis use in the 12 months prior to the survey.

Table 22.6. Prevalence of Abstinence from Cannabis by Youths' Biological Parent Marital Status

Biological Parent Marital Status	% Abstinent from Cannabis (95% CI)
Married	70.8 [67.0, 74.3]
Living together/common-law	71.0 [66.2, 75.3]
Separated	58.9 [55.5, 62.1]
Parent(s) deceased	54.5 [40.5, 63.19]
Divorced	51.9 [47.4, 61.5]

Prevalence of cannabis use did not differ substantially with the number of household members, with the exception of youth living in households of three or fewer members; such youth were more likely to use cannabis those living with four to five household members (41.9% vs. 33.3%, 95% CIs [37.4, 46.5] and [30.3, 36.5]). This result suggesting that cannabis use is more likely in single parent homes.

Other Drug Use

Fewer than 10% (8.9%, 95% CI: 7.9, 10.1) of First Nations youth reported past year use of illicit drugs or misuse of prescription drugs (i.e., cocaine, amphetamines, inhalants, sedatives, hallucinogens, and opioids). Regarding gender differences, the prevalence of amphetamines was higher among females than among males (see Table 22.7).

No change was observed in the prevalence of cocaine or inhalants/solvent use since RHS 2002/03. However, use of sedatives/sleeping pills increased from 0.8% in RHS 2002/03 to 2.2% in RHS 2008/10.

Change in prevalence of amphetamine, hallucinogen, and opioid use between RHS 2002/3 and RHS 2008/10 could not be assessed due to changes in question wording.

Table 22.7. Illicit Drug Use and Prescription Drug Misuse by First Nations Youth in the 12 Months prior to RHS 2008/10

Substance	% using substance in past 12 months [95% CI]
Cannabis	
Females	36.3 [33.7, 39.1]
Males	36.1 [32.9, 39.4]
Overall	36.2 [34.1, 38.4]
Hallucinogens*	
Females	4.5 [3.6, 5.6]
Males	3.4 [2.6, 4.4]
Overall	3.9 [3.2, 4.7]
Amphetamines**	
Females	4.8 [3.8, 6.0]
Males	2.5 [1.8, 3.4]
Overall	3.6 [3.0, 4.3]
Cocaine or crack	
Females	3.0 [2.2, 3.9]
Males	2.6 [1.9, 3.4]
Overall	2.8 [2.2, 3.4]
Sedatives or sleeping pills***	
Females	3.0 [2.3, 3.8]
Males	1.5 [1.0, 2.3] ^E
Overall	2.2 [1.7, 2.8]
Illicit or prescription opioids****	
Females	1.5 [0.9, 2.3] ^E
Males	1.1 [0.6, 1.9] ^E
Overall	1.3 [0.8, 1.9] ^E
Inhalants (solvents, glue, gas)	
Females	1.1 [0.6, 2.0] ^E
Males	1.1 [0.7, 1.8] ^E
Overall	1.1 [0.8, 1.7] ^E
Sought treatment in lifetime	
Drug abuse/addiction	5.1
Solvent abuse/addiction	2.3 ^E

*Hallucinogen category included LSD, magic mushrooms, PCP and Special K.

**Amphetamines category included crystal meth, speed, and ecstasy.

***Use without a prescription only. Category includes Valium, Serepax, Rohypnol, etc.

****Category includes illicit opioids use (e.g., heroin) and non-prescription use of codeine, methadone, morphine, etc.

^E Moderate sampling variability; interpret estimate with caution.

DISCUSSION

The RHS 2008/10 collected data on the rates of legal and illegal drug use among First Nations youth living in First Nations communities. This data was compared to findings from RHS 2002/03 and to data from youth in the general Canadian population.

Results highlight various areas where interventions may be focused. The current smoking rate among First Nations youth is exceptionally high. Approximately one in three First Nations youth reported being current smokers, and one in five were daily smokers; females were more likely to smoke than males. Rates of current and daily smoking were dramatically higher than those observed in the general Canadian population. On a positive note, approximately 8% of First Nations youth were ex-smokers and indicated a desire to live a healthier life as their reason for quitting. In addition, youth raised in smoke-free homes were half as likely to smoke as those raised in a home with a smoker. These latter two findings suggest potential areas for intervention: increasing rates of smoking cessation by encouraging a healthy lifestyle, and encouraging smoke-free family homes.

Rates of abstinence from alcohol were higher among First Nations youth than among youth in the general Canadian population. However, when First Nations youth did drink, they were more likely to drink heavily. These findings suggest that intervention efforts should encourage abstinence from alcohol, or with respect to harm reduction, encourage moderate and responsible drinking. Results revealed that youth were more likely to remain abstinent from alcohol if their biological parents were still living together – suggesting that a stable home-life may help to decrease risk of alcohol use.

Regarding drug use, cannabis was the most commonly used drug among First Nations youth. One in three youth had used cannabis in the past year, compared to fewer than one in 10 using other drugs. Educating youth on the risks associated with cannabis use, including later abuse and dependency issues, may encourage some youth to decrease or cease using.

Social and health determinants of drug and alcohol use were also assessed. Parental marital status was consistently related to youth substance use. Licit and illicit drug use was more common among youth whose parents were no longer together due to separation, divorce, or death of a spouse than it was among those whose parents were married or living in a common-law relationship. These results suggest that youth

whose biological parents are not still together may require extra support to adopt healthy behaviours.

When it comes to intervention efforts, a multi-level approach is needed that considers causes at the individual, community and systemic level. Efforts should be grounded in the strengths of First Nations youth and their communities. Community-level interventions may include the development of health education and treatment programs designed to reduce substance use, particularly those that include a cultural component, given the protective effects of First Nations culture on youth substance use (Dell et al., 2011; Herman-Stahl, Spencer, & Duncan, 2003; Stone, Whitbeck, Chen, Johnson, & Olson, 2005). Research suggests interactive programs that allow participants to identify the pressures they feel to use substances and learn the skills needed to resist those pressures are more effective than programs that simply provide information about harmful effects (Canadian Centre for Substance Abuse, 2007).

Additionally, and perhaps more importantly, intervention efforts should not shy away from tackling the effects that the current and historical marginalization and mistreatment of First Nations peoples have had on substance use and addiction among youth. Outcomes stemming from this marginalization, such as poverty, racial discrimination, and cultural deterioration are also likely to increase risk of youth substance use. Community coalitions have been shown to be effective for identifying the social forces that are driving youth substance use in a particular community and for developing effective strategies to address the problem (Canadian Centre for Substance Abuse, 2007).

CONCLUSIONS

Results from RHS 2008/10 revealed a number of areas in which improvements are necessary with respect to youth substance use, mainly current and daily smoking, binge drinking, and cannabis use. Compared to youth in the general Canadian population, youth living in First Nations communities are at greater risk of substance use. The present chapter highlights some potential areas for change. Efforts to encourage prevention or reduce substance use on-reserve and in northern communities must consider individual, community, and societal factors that are associated with an increased risk of substance use among First Nations youth.

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Chapter 23

Sexual Health

EXECUTIVE SUMMARY

The First Nations Regional Health Survey (RHS) 2008/10 demonstrated that 27.9% of First Nations youth aged 12 to 17 years living on-reserve and in northern communities were sexually active. Of those youth, 92.5% reported being sexually active within the 12 months prior to the survey. Just under half (47.2%) of older youth, those aged 15 to 17 years, reported being sexually active. This prevalence is double the estimated 29% of Canadian youth aged 15 to 17 years who report being sexually active (Rotermann, 2008). Fewer than one in 10 (9.9%) of younger youth, those aged 12 to 14, reported being sexually active. Despite this, younger First Nations youth aged 12 to 14 years reported having more sexual partners than older youth aged 15 to 17 years, in comparison to Canadian youth, who report more sexual partners with age. This information suggests that younger First Nations youth are participating in more risky sexual behaviours. Prevalence of condom use among First Nations youth are similar to the rates among Canadian youth, with 79.1% of sexually active First Nations youth reporting using condoms, compared to 81% of Canadian youth. Also, 22.5% of First Nations youth reported the use of birth control pills, while 8.2% reported no use of birth control. Prevalence of pregnancy was unchanged in the period between RHS 2002/03 and RHS 2008/10, at 16.0% and 16.1% respectively. Of those First Nations youth who reported having had a child, 58.0% reported having had the child between the ages of 12 and 15. Only 9.6% of First Nations youth reported having ever been tested for sexually transmitted infections (STIs), while 6.8% reported having been tested for HIV/AIDS. Alarming, 80% of First Nations youth who reported being sexually active had consumed alcohol in the year prior to the survey. The data presented illustrate the current sexual health situation of First Nations youth living in First Nations communities in Canada. Of particular concern is the high prevalence of teenage pregnancy and parenthood, which make First Nations youth more vulnerable to single parenthood, low educational attainment, poverty, and poor health outcomes. The relationship between alcohol use and sexual behaviours is also concerning and must be examined further. First Nations youth are particularly vulnerable to such risky behaviours as a result of colonial history, which continues to affect the health and well-being of First Nations communities. Concerted effort should be made to address the individual, family, and community-level concerns, utilizing cultural strengths to improve sexual health education and programming.

KEY FINDINGS

- More than one-quarter (27.9%) of First Nations youth aged 12 to 17 years reported being sexually active.
- Sexual activity for First Nations youth increased with age, with 64.7% of 17-year-olds reporting being sexually active.
- Less than one in 10 (9.9%) of First Nations youth aged 12 to 14 years reported sexual activity.
- First Nations youth aged 12 to 14 years reported more sexual partners than did older youth aged 15 to 17 years.
- More than three-quarters (79.1%) of sexually active First Nations youth reported using a condom.
- More First Nations boys (84.1%) reported using a condom than girls (74.4%).
- First Nations youth aged 15 to 17 years reported more condom use (80.0%) than did younger youth aged 12 to 14 years (75.1%).
- 59.0% of First Nations youth who reported using condoms stated that they “always” used condoms.
- The most frequently reported reason (26.5%) for not always using condoms was being with a steady partner.
- Less than one-quarter (22.5%) of First Nations youth who were sexually active in the year prior to the survey reported using birth control pills.
- Less than one-fifth (16.0%) of sexually active First Nations youth reported having been pregnant or having gotten someone pregnant.
- 60.7% of those First Nations youth who reported having been pregnant or having gotten someone pregnant reported having one child.
- 58.0% of First Nations youth with children had their first child a very young age, between the ages of 12 and 15 years.
- Only 9.6% of First Nations youth reported having ever been tested for STIs, while only 6.8% of First Nations youth reported having been tested for HIV/AIDS.
- 80.0% of First Nations youth who reported being sexually active also reported having consumed alcohol in the year prior to the survey.

INTRODUCTION

Current statistics on the sexual health of First Nations youth are concerning. Rates of sexually transmitted infections, HIV, unplanned pregnancy and pregnancy at an early age are on the rise among First Nations youth and are significantly higher than the rates among youth in the general Canadian population (Anderson, 2000; Public Health Agency of Canada [PHAC], 2004). Sexual health concerns among First Nations youth must be understood within the historical and cultural context that has shaped the lives of First Nations people and communities. This requires a deeper examination of the colonial history that continues to affect First Nations people.

This chapter analyzes data gathered on sexual health and sexual activity of First Nations youth aged 12 to 17 years from RHS 2008/10. Where applicable, comparison data for Canadian figures on youth sexual activity was drawn from the 2005 Canadian Community Health Survey (CCHS), Cycle 3.1 (Rotermann, 2008). A cultural framework guided the analysis of the RHS data. Utilizing a cultural framework provides the cultural context for human sexuality and sexual health behaviours, creating an analysis process appropriate to the unique history and circumstance of First Nations youth. A historical overview will illustrate the factors that have influenced the sexual health of First Nations youth. Drawing on the current data, patterns of sexual behaviour among First Nations youth, including sexual activity and birth control, are presented. From this information, potential concerns, as well as approaches to address the needs of First Nations youth in relation to their sexual health, are discussed.

Cultural Framework

The four directions of the RHS Cultural Framework provide a culturally based approach to understanding First Nations health and well-being (National Aboriginal Health Organization [NAHO], 2005). Within the four directions model, it is essential that the total health of the individual be promoted through the mind, body, spirit, and heart, while also contextualizing this within the environment of the family and community. The western door emphasizes the significance of knowledge, education, and learning, and reflecting on the current data will promote an understanding of First Nations sexual health in order to facilitate direction. The northern door highlights the importance of healthy sexual behaviours for individuals, family, and community well-being. The eastern door recognizes the importance of culture and

spirituality to personal and community health, calling attention to the need to restore traditional beliefs, values, teachings, ceremonies, and medicines to facilitate health. The southern door emphasizes the significance of a healthy living environment where harmony and balance support stability, health, and well-being

Historical Contexts

Canada's First Nations youth are disproportionately affected by STIs (Health Canada, 2001), HIV (PHAC, 2004), teen pregnancy, and sexual abuse (Aboriginal Nurses Association, 2002). For example, rates of chlamydia and gonorrhoea in Canada are highest among Aboriginal (First Nations, Métis, and Inuit) adolescents (PHAC, 2007). Evidence suggests that First Nations youth are highly overrepresented in newly diagnosed HIV infection cases (Health Canada, 2001). Teen pregnancy among First Nations youth is also much higher, at rates up to six times those of Canadian youth (Cloe & Guimond, 2009; UNICEF Canada, 2009). Sexual abuse is also a serious and widespread concern among Aboriginal youth (Ontario Federation of Indian Friendship Centres [OFIFC], 2002).

The state of sexual health of First Nations youth is the result of complex interactions among historical, cultural, social, developmental, and behavioural factors. Similar to other Canadian youth, First Nations youth are more vulnerable to infections (Rotermann, 2008), more susceptible to peer pressure, more likely to engage in risk-taking behaviours, and more often lacking skills and confidence to negotiate safe sex (Flicker et al., 2010) than are adults. These issues are pronounced among First Nations youth and compounded by additional factors resulting from a history of colonization and oppression. These factors include poverty (Statistics Canada, 2006c), abuse (Aboriginal Healing Foundation, 2004), neglect (National Collaborating Centre for Aboriginal Health, 2010), culture loss (Aboriginal Healing Foundation, 2004), and poor self-esteem and identity confusion (Hundleby et al., 2007). The following will explore this history and the key concerns influencing the sexual health of First Nations youth.

Throughout history First Nations people have experienced significant cultural and social change that has influenced their views of human sexuality. In traditional First Nations cultures, sex is viewed as a gift from the Creator that is meant to be pleasurable (Newhouse, 1998). In traditional First Nations cultures, expressions of sexuality were accepted and expected as a normal part of human development (Aboriginal Nurses Association,

2002; McGeough, 2008). Sex was regarded as necessary to personal well-being and reproduction (Kliest, 2008). Sex was considered a sacred experience for its ability to produce human life, which sustains people (Newhouse, 1998). The openness and celebration of sex and sexuality among First Nations cultures was in stark contrast to Christian-influenced Western views on human sexuality, which regard sex and sexuality as dirty and something that needs to be controlled and relegated to the private (Newhouse, 1998). This dichotomy of views represents a source of conflict for First Nations youth, which has undoubtedly interrupted the formation of healthy sexuality and sexual behaviours. Research by the Ontario Federation of Indian Friendship Centres (2002) has also found that Aboriginal youth who reported having been sexually abused were three times more likely to report having sex because they desire love. Sexually abused youth were also more likely to have six or more sexual partners, less likely have monogamous relationships, less likely to use contraception, and much more likely to become pregnant or cause a pregnancy (OFIFC, 2002). The high rate of sexual abuse in First Nations communities is a significant factor affecting sexual health (OFIFC, 2002).

Many First Nations have also suffered great cultural losses, including the loss of puberty or coming-of-age ceremonies (Duran, Duran, & Braveheart, 1998). Puberty or coming-of-age ceremonies existed among most First Nations cultures and were performed to facilitate positive identity development and to educate youth about the power of human sexuality and its connection to Creation and spirituality. These ceremonies acknowledge the transition from childhood to adolescence or adulthood as a critical stage in which youth are at heightened risk for biological and psychosocial stress (Markstrom, 2008). It was understood that this critical stage in development necessitated special attention to foster healthy development (Markstrom, 2008). Coming-of-age ceremonies were the primary method for transmission of sexual health knowledge, moral codes, values, and appropriate behaviours to First Nations youth. The influence of Western culture, much to the detriment of First Nations peoples, has seen the replacement of these ceremonies with unhealthy coming-of-age practices, such as the first time drinking alcohol, going to a party, or the first time having sex (Markstrom, 2008). With the loss of these ceremonies among many First Nations communities, valuable cultural knowledge and teachings on human sexuality and relationships are no longer being transmitted to First Nations youth.

Additionally, the history of colonization and assimilation policies and practices in Canada has contributed to the

conditions of poverty in First Nations communities. Currently, one in four First Nations children lives in poverty, compared to one in nine Canadian children (Statistics Canada, 2006a). It is well documented that living in poverty has several ill effects on the lives and health outcomes of children and youth (National Aboriginal Consultation Project & Save the Children Canada, 2002). Family violence, lack of education, poor health, and substance abuse are just some of the negative effects associated with poverty. Of particular concern are the increased levels of alcohol and drug abuse reported by First Nations youth (Chiefs of Ontario, 2009; National Aboriginal Consultation Project and Save the Children Canada, 2002; Saskatchewan Ministry of Health, 2009). Compared to Canadian youth, more First Nations youth are using alcohol and drugs, and are doing so at an earlier age (Chiefs of Ontario, 2009; Saskatchewan Ministry of Health, 2009; van der Woerd et al., 2005). Further research has established that First Nations youth who use alcohol and drugs are more likely to engage in risky sexual behaviours (OFIFC, 2002). The consumption of alcohol has also been found to be a contributing factor in teenage pregnancies among First Nations youth (OFIFC, 2002). Moreover, there are few sexual health education programs for First Nations youth, and what is available is often delivered in culturally inappropriate ways (Banister & Begoray, 2006).

It has been acknowledged that Western biomedical approaches to health are ineffective and incongruent with First Nations understandings of health and well-being that are based in the concepts of balance and wholism (Banister & Begoray, 2006). In particular, with regard to sex and sexual health, Western and First Nations understandings contrast (Newhouse, 1998). Western values and individualistic views present puberty as a personal or private concern, serving to isolate youth at the critical stage of puberty when they are in special need of meaningful connections, especially to family and community (Banister & Begoray, 2006). It is in fact the family and community ties that are the centre of First Nations culture (Banister & Begoray, 2006) and that promote identity development in First Nations youth. These are important factors that function to promote healthy youth sexuality and sexual behaviours among First Nations youth

METHODS

The RHS 2008/10 asked First Nations youth aged 12 to 17 years living in First Nations communities to report whether they were sexually active and whether they had had sexual intercourse in the 12 months

prior to the survey. Additionally, a series of questions regarding the characteristics of their injuries was posed:

- How many people have you had sexual intercourse with in the past 12 months?
- Which of the following birth control or protective methods do you and/or your partner(s) use?
- What is the main purpose of that/those methods?
- How often do you use condoms?
- What is the main reason for not always using condoms?
- Have you ever been pregnant or gotten someone pregnant?
- How many children have you given birth to or fathered?
- At what age did you have your first child?
- Have you ever been tested for Sexually Transmitted Diseases (STDs) or Sexually Transmitted Infections (STIs)?
- Without revealing the test result, have you even been tested for HIV/AIDS?

Potential links between sexual habits and other variables included in RHS 2008/10 were also assessed, including alcohol use.

RESULTS

Sexual Activity

In RHS 2008/10, 27.9% of First Nations youth reported that they were sexually active. This figure was consistent with the RHS 2002/03 data, which found that 28.4% of First Nations youth were sexually active. As seen in Figure 23.1, 9.9% of First Nations youth aged 12 to 14 years reported being sexually active—a slight increase from RHS 2002/03, which found only 7.9% of this age group sexually active. Also, 47.2% of older youth aged 15 to 17 years reported being sexually active, compared to 46.1% of First Nations youth in RHS 2002/03. The prevalence of sexual activity was much higher among First Nations youth than among older Canadian youth aged 15 to 17, of whom only 29% reported sexual activity. Comparatively, only 8% of younger Canadian youth aged 15 or under reported being sexually active, while 9.9% of First Nations youth aged 12 to 14 reported the same. As seen in Table 23.1, more First Nations youth reported being sexually active as age increased.

Figure 23.1. Sexual Activity, by Age Group

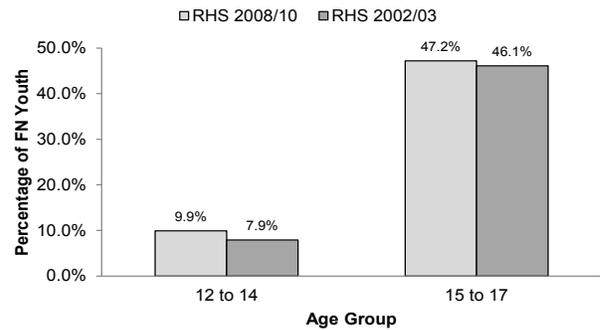
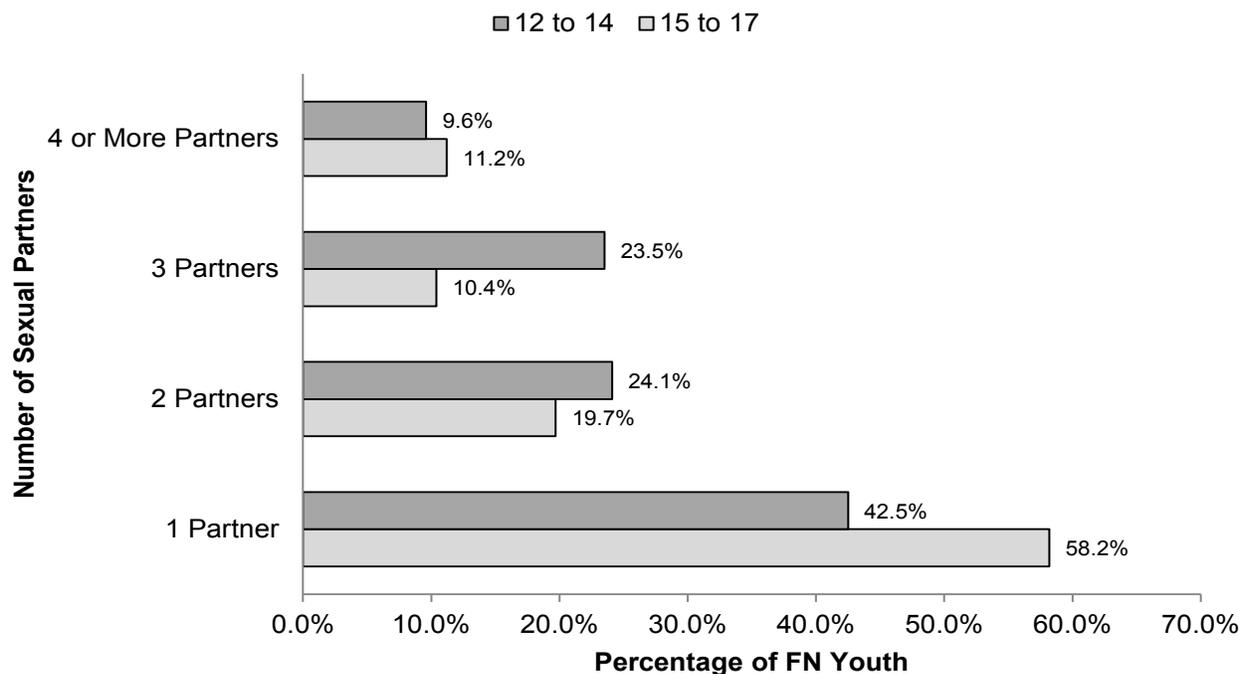


Table 23.1. Percentage of Youth Sexually Active, by Age

Age	Sexually active (%)
12	3.0
13	8.6
14	16.8
15	29.2
16	50.8
17	64.7

Examining the number of sexual partners by age of First Nations youth revealed that 58.2% of First Nations youth aged 15 to 17 years and 42.5% of First Nations youth aged 12 to 14 years reported having only one sexual partner in the 12 months prior to the survey. Figure 23.2 illustrates the reported number of sexual partners by age group. Younger First Nations youth who reported being sexually active had more sexual partners than older First Nations youth. Just under one-quarter (24.1%) of younger First Nations youth reported having two sexual partners, compared to 19.7% of older First Nations youth. Again, just under one-quarter (23.5%) of younger First Nations youth reported three sexual partners, compared to 10.4% of older First Nations youth. Fewer than one in 10 (9.6%) younger First Nations youth reported having four or more sexual partners, compared to 11.2% of older First Nations youth. In contrast, youth in the general Canadian population report more sexual partners with age.

Figure 23.2. Number of Sexual Partners, by Age Group



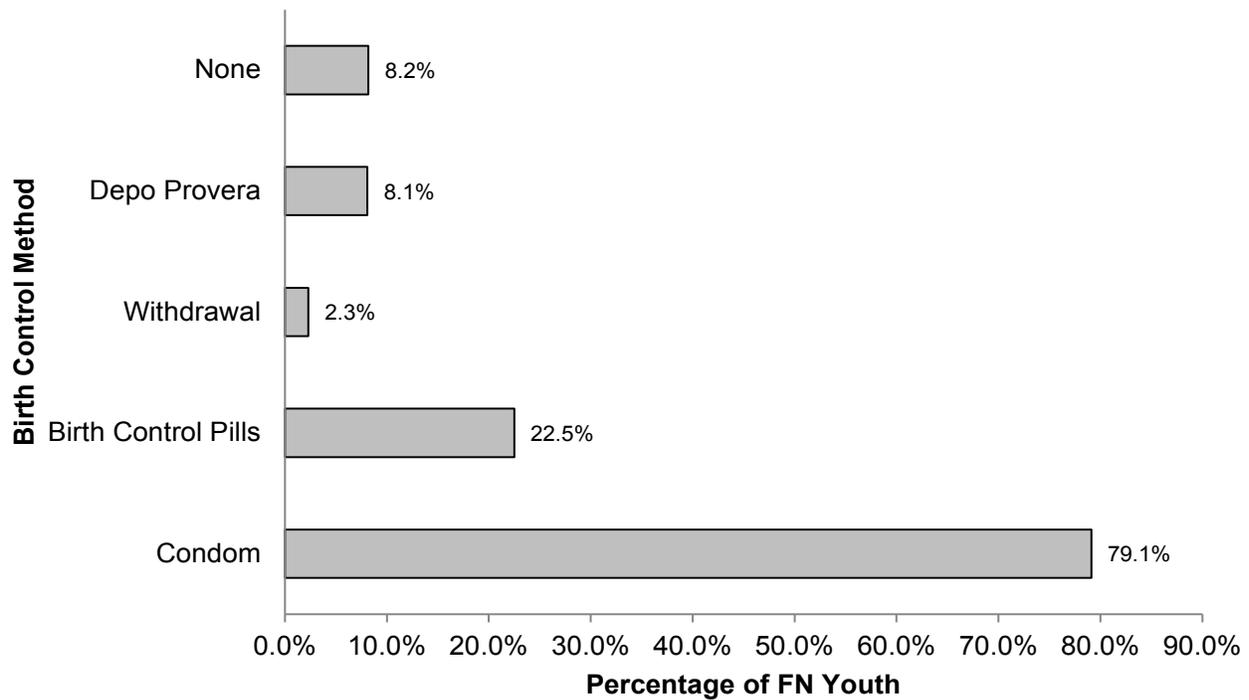
Examining gender differences in sexual activity demonstrated that 29.2% of First Nations female youth reported being sexually active, compared to 26.7% of males. Regarding age and gender, the proportions of First Nations youth who were sexually active were similar among males and females. Among First Nations youth, of those aged 12 to 14 years, 9.3% of males and 10.6% of females reported being sexually active. Of those aged 15 to 17 years, 45.5% of males and 48.9% of females reported being sexually active. First Nations male and female youth also reported similar numbers of sexual partners, with 54.3% of males and 56.4% of females reporting one sexual partner in the 12 months prior to the survey, and 13.2% of First Nations male youth and 8.8% of female youth reporting four or more sexual partners in the 12 months prior to the survey. Data from the general Canadian population demonstrated that male youth are more likely to have multiple sexual partners.

Birth Control and Protection Methods

Birth control and protection methods fall under two main categories: prevention of pregnancies and reducing the risk of STIs. Figure 23.3 summarizes the leading birth control protection methods reported for First Nations youth. More than one-quarter (27.4%) of all First Nations youth reported using birth control to avoid pregnancy, while 15.9% reported using birth control for protection

against STIs. More than half (55.8%) of all First Nations youth reported use of birth control and protection methods both to avoid pregnancy and to protect against STIs.

Figure 23.3. Leading Birth Control or Protection Methods



Among First Nations youth who reported having sexual intercourse in the 12 months prior to the survey, 79.1% reported using condoms as a form of birth control or protection. This figure decreased only slightly from RHS 2002/03, when 81% of First Nations youth reported using condoms. Although the 2005 CCHS reported more specifically on condom use at last intercourse, 81% of older Canadian youth aged 15 to 17 years reported using a condom. Condom use among younger First Nations youth aged 12 to 14 years was 75.1%, while it was 80.0% for older First Nations youth aged 15 to 17 years. Categorizing First Nations youth by gender showed that 84.1% of males and 74.4% of females reported using condoms. Similarly, male youth in the general Canadian population are more likely to report having used a condom at last intercourse than are female youth (80% vs. 70%, respectively [Rotermann, 2008]).

When asked how often they used condoms, 59.0% of First Nations youth stated that they “always” used condoms; 22.8% reported that they used condoms “most of the time”; 11.6% reported that they “occasionally” used condoms; and another 6.7% reported “never” using condoms. Table 23.2 summarizes the reported reasons for not “always” using a condom.

Table 23.2. Reasons for Not “Always” Using a Condom

Reason for not “always” using a condom	Percentage
With a steady partner	26.5
Did not have a condom at the time	18.5
Under the influence at the time	16.5
Did not want to use one	7.3
Did not think to use one	7.2
Partner wanted to get pregnant	2.4
Could not afford one	1.3
Other	6.5

Of the First Nations youth who reported being sexually active, 22.5% reported using birth control pills. The use of birth control pills by age group was as follows: 15.1% of youth aged 12 to 14 years and 24.2% of youth aged 15 to 17 years reported using birth control pills. Fewer than one in 10 (8.1%) of the First Nations youth who reported being sexually active also reported using Depo-Provera (injection) birth control. One in 10 (10.0%) younger First Nations youth reported using Depo-Provera, compared to 7.7% of older First Nations youth. Fewer than one in 10 (8.2%) First Nations youth reported using no form of birth control: 6.8% of younger First Nations youth and 8.5% of older First Nations youth reported using no form of birth control.

Pregnancy or Fathering a Child

Information was gathered to assess the rates of pregnancy and parenthood among First Nations youth. The data demonstrated that 16.0% of First Nations youth who reported being sexually active had been pregnant or had gotten someone pregnant. This was comparable to the 16.1% of sexually active youth in RHS 2002/03 who reported having been pregnant or having gotten someone pregnant, indicating that pregnancy rates have remained unchanged. Figures for male and female First Nations youth who reported being sexually active and having ever been pregnant or having gotten someone pregnant differed somewhat, at 14.3% for males and 17.5% for females. Of the First Nations youth who reported mothering or fathering a child, 60.7% reported having one child. The data showed that more First Nations youth (58.0%) with children had their first child at a very young age (12 to 15 years) while another 42.0% had their first child at age 16 or 17

Patterns of Testing: STIs and HIV/AIDS

When asked if they had ever been tested for an STI, the majority (90.4%) of First Nations youth answered no. Among the First Nations youth who reported having been tested, being tested increased with age, from 3.4% of younger First Nations youth to 16.0% of older First Nations youth. A higher percentage of First Nations female youth than male youth reported being tested for STIs (14.2% vs. 5.3%, respectively).

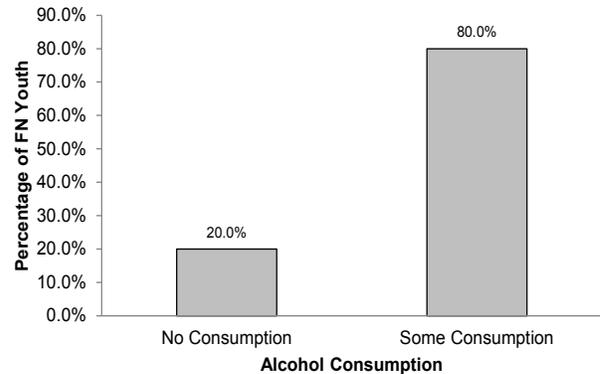
The data revealed similar findings for First Nations youth who reported being tested for HIV/AIDS. Only 6.8% of First Nations youth reported having ever been tested for HIV/AIDS: 3.8% of those aged 12 to 14 years and 9.9% of those aged 15 to 17 years. Additionally, more First Nations female youth than male youth reported having been tested for HIV/AIDS (8.5% vs. 5.1%, respectively). Having an increased number of sexual partners was associated with a higher prevalence of HIV/AIDS testing. For example, of those who reported having one sexual partner in the 12 months prior to the survey, 16.3% had undergone HIV/AIDS testing, whereas 33.5% of those who had four or more sexual partners reported being tested for HIV/AIDS.

Other Factors

Regarding sexual activity, the data demonstrated that 80% of First Nations youth who reported being sexually active also reported having consumed alcohol in the 12 months prior to the survey (see Figure 23.4). Of those who reported having ever been pregnant or

having gotten someone pregnant, 79% also reported consuming alcohol in the 12 months prior to the survey.

Figure 23.4. Sexual Activity, by Alcohol Consumption



DISCUSSION

The Western Door

Exploring the sexual habits of First Nations youth provides insight into their current sexual health situation. It is important to understand what the data tell us in order to provide direction for sexual health education and promotion for First Nations youth. Examining the data, we can see that First Nations youth's rates of sexual activity are comparable to rates of sexual activity in the general Canadian youth population. First Nations youth and Canadian youth also show similar patterns of increased sexual activity with age. However, when examining these data more closely, we can see where First Nations youth differ in sexual habits. A comparable 9.6% of First Nations youth and 8% of general Canadian youth under 15 years of age report sexual activity. However, younger First Nations youth aged 12 to 14 years reported more sexual partners than older First Nations youth aged 15 to 17; in contrast, youth in the general Canadian population report more sexual partners with age (Devries et al, 2007). This information suggests that younger First Nations youth who are sexually active are engaging in potentially more risky sexual behaviours at a younger age.

Other research has established that early sexual activity may increase the risk of unsafe sex (Kotchick, Shaffer, & Forehand, 2002) and teenage pregnancy and contracting sexually transmitted infections (Langille & Curtis, 2002). Although the RHS did not collect information on rates of STIs among First Nations youth, the data did demonstrate that, despite having more sexual partners, younger First Nations youth reported lower rates of testing for STIs and HIV/AIDS than did older First Nations youth. Younger First Nations youth who were sexually active also

reported using condoms and birth control pills less often than older First Nations youth. Additionally, most First Nations youth with children had their first child at a very young age, from 12 to 15 years old. Given the negative consequences of early sexual behaviour, it is imperative to establish ways to decrease the number of First Nations youth who engage in risky sexual behaviour by understanding the factors that contribute to this behaviour.

The data also showed that First Nations youth who consumed alcohol engaged in sexual activity more often. The current data also support other research that has shown that frequent alcohol use is a predictive factor for risky sexual behaviours among youth. This relationship was found for any alcohol consumption in the past year, rendering it unclear in relation to frequent alcohol consumption. However, other research has identified alcohol consumption as a significant factor in risky sexual behaviours among youth (Devries, Free, & Jategaonker, 2007; Kotchick et al., 2002). The Ontario Federation of Indian Friendship Centres (2002) cited similar findings in its report on urban Aboriginal youth sexual health and pregnancy when it reported that alcohol and drug use was the most cited reason for Aboriginal youth pregnancy (OFIFC, 2002). Given this data, alcohol consumption presents a serious concern that must be further examined in relation to First Nations youth sexual health.

The Northern Door

Langille (2007) explains that among youth, the choices to become sexually active and to use contraception are influenced by a number of factors that operate at the individual level (e.g., knowledge, attitudes and beliefs), the intra-familial level (e.g., family structure, parent-child communication, and socio-economic status), the extra-familial level (e.g., peer influences, sexual health education at school, and health services) and the community level (e.g., norms and values). Despite this, sexual health research, policy, and programs tend to take a self-orientated focus to factors that relate to sexual behaviours (Kotchick et al., 2002). An awareness of the importance of family and social context provides a better approach to understanding sexual health among First Nations youth. It is not enough to address the sexual health knowledge, beliefs, and attitudes of youth, as many health education programs attempt to do, because it is known that individuals live in an environment where multiple factors influence decision making. This is particularly applicable to the lives of First Nations youth, where historical influences continue to permeate all levels with a host of factors that interplay and influence how youth navigate sexual decision making.

At the family level, factors such as parental education, single parenting, socio-economic status, and parent education have all been found to influence youth sexual behaviours (Kotchick et al., 2002). Understanding these factors in relation to the context of First Nations youth sexual health is imperative when over one-third of Aboriginal children live in poverty and are more than twice as likely to live in a single-parent home (Statistics Canada, 2006b). Research has also shown that parents, particularly mothers, act as an important role model for sexual behaviour (Kotchick et al., 2002; OFIFC, 2002). Thus, it becomes important that we simultaneously address the sexual health of First Nations parents, particularly women, in promoting positive role modeling in First Nations communities.

The Eastern Door

The loss of First Nations ceremonies, teachings, and practices of sexual health and well-being may help to explain the current sexual health practices among First Nations youth. The eastern door highlights the importance of culture and spirituality to personal and community health. The need to restore traditional cultural beliefs, values, teachings, ceremonies, and medicines is identified as critical to address the effects of the colonial history that has disrupted First Nations culture, health, and well-being (NAHO, 2008; Wilson, 2002).

Research performed by OFIFC (2002) on urban Aboriginal youth sexual health and pregnancy identified that almost half of the Aboriginal youth surveyed identified with Native spiritual traditions but felt that concrete cultural teachings on sex and family planning were lacking. OFIFC also found that the youth who identified with Native spirituality were less likely to have been pregnant or to have gotten someone pregnant. In their sample, 63% of the youth who identified with Native spirituality had not conceived as of yet, compared with 52% of youth who were Christian and 48% of youth with no spiritual ways (OFIFC, 2002). This information suggests that First Nations culture and spirituality may act as a protective factor to risky sexual behaviours. Similar research has found that adolescents who report higher levels of religiosity are less likely to be sexually active (Brigham & Crockett, 1996; Kotchick et al., 2002). Unfortunately, there is limited research to establish the relationship between Native spirituality, culture, and sexual health. However, considering the negative outcomes associated with risky sexual behaviour, it is crucial that we consider the possible protective features of First Nations culture and spirituality.

Above all, it is essential to consider how sex and sexual health are understood in First Nations cultures. In traditional First Nations cultures, sex is viewed as a gift from the Creator that was an accepted and expected part of human development, facilitating reproduction and personal well-being (Newhouse, 1998). However, due to cultural oppression and colonial influence, significant cultural change has ensued and influenced the ways in which sexuality is expressed. The sexual abuse experienced by many First Nations children and youth in the residential school system has affected the ability of generations of First Nations families to discuss, express, and role model healthy sexuality. Further, valuable First Nations ceremonies and rites of passage that were intended to educate youth on puberty, sex, relationships, and family planning are no longer commonly passed down to youth in many First Nations communities. Adolescence is a period when great physical, emotional, and social change is taking place, and because of this, it is a critical stage in development in which youth require considerable support and guidance. Furthermore, at this stage youth are shaping and exploring their identity, which has significant implications for self-esteem. Kotchick et al. (2002) have found that self-esteem is a significant predictor of sexual behaviours and that youth with lower self-esteem are more likely to engage in unprotected sex. Promoting First Nations culture and spirituality has the potential to facilitate positive identity development and self-esteem, as well as to provide important cultural teachings about human sexuality.

The Southern Door

The southern door emphasizes the importance of a healthy living environment where harmony and balance support stability, health, and well-being. Balance is at the heart of all First Nations people. Balance among all Creation, balance among the physical, mental, emotional and spiritual aspects of the self, and, especially, balance among men and women are all important aspects in the lives of First Nations people (Boyer, 2009). Balance among the sexes was promoted through the distinct, but equally respected, roles and responsibilities of men and women (Boyer, 2009). This balance is critical to a harmonious family, community, and nation. However, through colonial policy and influence, such as the Indian Act and patriarchal value, this balance has been disrupted. Women, in particular, have lost a great deal of their political, social and legal status, and authority (Boyer, 2009). The diminished roles and status of First Nations women have also left them at an increased risk of physical and sexual abuse (Amnesty International,

2009). Aboriginal women are victims of sexual and physical violence at three to four times the rate of non-Aboriginal women (Amnesty International, 2009).

Very much a result of negative representations of First Nations women as hyper-sexualized, these stereotypes continue to influence First Nations women's reality and, consequently, their understanding and respect for themselves as sexual beings (Anderson, 2000). While the data showed that only slightly more First Nations female youth than male youth are sexually active, and similar percentages are reported for number of sexual partners, females were much less likely to report condom use than males. First Nations female youth also reported slightly higher rates of having ever been pregnant, compared to male rates of having ever gotten someone pregnant. It is known from the literature that single-parenting is much higher among female adolescents. Furthermore, because female youth often take on the majority of parenting responsibilities, they have fewer educational and employment opportunities and are subsequently more vulnerable to poverty and poor health (Langille, 2007).

Additionally, intergenerational impacts of the residential school legacy have also left First Nations youth vulnerable to physical and sexual abuse. In its survey of Aboriginal youth, OFIFC found that 61% of female youth, compared to 35% of male youth, report having been sexually abused (OFIFC, 2002). It was also found that sexual abuse manifested itself in the lives of male and female youth, who were more likely to have sex because they desired love, more likely to have multiple partners, less likely to use protection, and more likely to become pregnant or cause a pregnancy.

At the community level there is an obligation to provide adolescents with a safe passage into adulthood. This requires that First Nations communities seek community well-being and promote healthy behaviours, including the promotion of culture, to address the negative influences of colonization and healing from intergenerational traumas, such as the residential school legacy. The promotion of traditional First Nations culture means restoring the balance between genders and the respect and authority of First Nations women within the community.

CONCLUSIONS

The data from RHS 2008/10 provide a glimpse into the sexual health behaviours of First Nations youth. Although First Nations youth show similar patterns of sexual activity to youth in the general Canadian population, closer examination reveals many differences. Early initiation of

sexual activity and increased numbers of sexual partners among very young First Nations youth are highly predictive of risky sexual behaviours. This may explain the elevated rates of teenage pregnancy and rates of STIs among First Nations youth. The current data also suggest that alcohol consumption is associated with increased rates of sexual activity among First Nations youth. As a serious concern among First Nations communities and a predictive factor in risky sexual behaviour among youth, alcohol consumption is an important sexual health concern that must be examined further and addressed.

Taking a multi-system approach is critical to developing a comprehensive understanding of the factors that shape the sexual health of First Nations youth, as it is those factors that indirectly affect First Nations youth that produce the greatest concern for sexual health. Most important, we must address societal factors, including the impacts of colonial history, which are far-reaching, affecting health and well-being on all levels. The complexity and multiplicity of historical influences on the sexual health of First Nations youth, in combination with the biological and developmental risks facing all youth, are indeed challenging to address but necessary if any efforts are to be effective.

Colonial influence and policy devastated First Nations cultures, disrupting societies and breaking down political, economic, community, and clan systems that were designed to support the health and well-being of First Nations people. Restoring these systems is necessary to return gender balance, family and community well-being, and ultimately individual health and well-being. Serving as a cultural strength and protective factor for youth, First Nations culture has the potential to promote healthy development and sexual health behaviours. Efforts should be made to address the current lack of culturally competent programs to provide effective sexual health education for First Nations youth. It is also imperative that First Nations communities, including First Nations youth, be included in the development of sexual health programs to ensure they are meaningful to each community's culture and needs.

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Chapter 24

Chronic Health Conditions and Health Status

EXECUTIVE SUMMARY

This chapter explores the self-reported presence of chronic health conditions, determinants of health, and health status among First Nations youth aged 12 to 17 years living on reserve and in northern communities. Approximately one-third of First Nations youth reported having been diagnosed with at least one chronic condition, the most common being allergies (16%), asthma (12.7%), and learning disabilities (5.8%). The distribution of health conditions among First Nations youth remained approximately the same when compared with RHS 2002/03, with the exception of an increase in the presence of learning disabilities (3.5% in RHS 2002/03 vs. 5.8% in RHS 2008/10). Some health conditions were observed to differ by gender; a higher proportion of First Nations girls were diagnosed with allergies, whereas a higher proportion of First Nations boys were diagnosed with attention deficit disorder/attention deficit hyperactivity disorder (ADD/ADHD) and other learning disabilities. Regarding the treatment of health conditions, First Nations youth diagnosed with allergies (approximately 40%), ADD/ADHD or learning disabilities (approximately 45%), or asthma (approximately 60%) were currently undergoing treatment or taking medications for their conditions. Overall, the majority of First Nations youth rated their general health and mental health as being “excellent” or “very good.” Those with at least one health condition rated their general health and mental health less positively than those without a health condition. A higher proportion of First Nations youth with diabetes perceived their general health and mental health as being “poor” (11.5% and 20.9%, respectively) compared to those without diabetes, of whom fewer than 3% considered their general and mental health to be “poor.” Apart from the difficulties First Nations youth experienced directly related to their health conditions, First Nations youth with a health condition were also more likely to face difficulties in other areas of their lives. A higher proportion of those with at least one health condition suffered from depression, had thought about suicide, or had attempted suicide compared to those with no health conditions. Regarding education, a lower proportion of First Nations youth with a health condition reported that they liked school and a higher proportion reported having had difficulties learning, compared to those without a health condition. On a positive note, no difference was observed between First Nations youth with or without a health condition regarding diet, obesity (with the exception of youth with diabetes), alcohol intake, smoking, or drug use. The majority of First Nations youth with at least one health condition appeared to be receiving care from a health professional. In the year prior to the survey, approximately 80% of First Nations youth reported having seen a doctor or community health nurse.

KEY FINDINGS

- The RHS 2008/10 revealed that 37.8% (95% CI [35.7, 39.9]) of First Nations youth reported having been diagnosed with at least one chronic health condition.
- The most commonly reported health conditions among First Nations youth were allergies (16.0%), asthma (12.7%), learning disabilities (5.8%), and dermatitis (4.3%).
- Compared to RHS 2002/03, a higher proportion of First Nations youth in RHS 2008/10 with allergies reported that they were currently seeking treatment or taking medication (39.1% in RHS 2008/10 vs. 26.3% in RHS 2002/03, 95% CIs [34.4, 44.1] and [20.9%, 30.5%], respectively).
- Slightly higher proportions of ADD/ADHD (5.1% vs. 2.3%) and learning disabilities (7.4% vs. 4.2%) were reported among First Nations boys than girls.
- The presence of learning disabilities has increased since RHS 2002/03 (5.8% vs. 3.5%).
- A lower proportion of First Nations youth with a health condition reported that they liked school and a higher proportion reported having had learning difficulties compared to those without a health condition.
- First Nations youth with a health condition did not differ from those without a health condition with respect to future educational goals.
- The majority of First Nations youth with a health condition rated their general health and mental health “good” or “very good/excellent.”
- Although First Nations youth tended to report their mental health as at least “good,” a higher proportion of First Nations youth with at least one health condition reported having felt sad, blue, or depressed in the past year, or to have thought about or attempted suicide, compared to those with no health conditions.
- Approximately half of First Nations youth are overweight or obese.
- First Nations youth with at least one health condition were no more or less likely to report consuming nutritious meals than those without a health condition.
- Although a large variation was seen among First Nations youth who reported undergoing treatments for health conditions, the majority of those with a health condition (77.4%) reported having seen a health care professional (e.g., doctor, community health nurse) in the year prior to the survey.

INTRODUCTION

Previous research has revealed that First Nations youth are at a substantial risk for future development of a wide variety health conditions. By adulthood, the presence of diabetes, respiratory disease, heart disease, liver disease, and psychological distress (depression, suicide ideation, and suicide attempts) is dramatically larger within First Nations youth living in First Nations communities than in the general Canadian population (First Nations Information Governance Committee, 2005; Public Health Agency of Canada [PHAC], 2003; Waldram, Herring, & Young, 2006; Young et al., 1998). In addition, early onset of health conditions increases the likelihood of developing other health conditions (co-morbidity). For example, the early onset of diabetes is linked with a future higher incidence of diabetic complications, including blindness, kidney disease, heart disease, and stroke (PHAC, 2003).

When age-standardized, the higher prevalence of health conditions among the First Nations population may be the result of a higher prevalence of individual risk factors (e.g., smoking, obesity, poor nutrition, lack of physical activity) as well as social, economic (e.g., lower educational attainment, lower income), and environmental (e.g., poor housing conditions) factors (Health Canada, 2009). In addition, various protective factors (e.g., nutritional diet combined with physical activity) may be harder to achieve for the First Nations population. For example, the high cost, poor quality, and lack of variety and availability of perishable foods, and the lack of recreational opportunities greatly increases the likelihood of obesity (Willows, 2005). The availability of health care is also problematic; the First Nations population faces many barriers to accessing health care, including gaps in insurance coverage, isolation, and language barriers (Peiris, Brown, & Cass, 2008). Thus, First Nations communities appear to lack many of the elements that would help to keep their residents healthy.

This chapter provides a summary of RHS 2008/10 data on health conditions among First Nations youth living on reserve and in northern communities, outlining the distribution of various health conditions by demographic characteristics such as gender, and compares these results with RHS 2002/03. This chapter also compares First Nations youth with health conditions to those without, on various risk factors and determinants of health (e.g., obesity, nutrition, activity level, education level, visits to health care professionals). Finally, suggestions are made regarding the areas of health care that most need improvement.

METHODS

Analyses were based on data from First Nations youth aged 12 to 17 years living on reserve and in northern communities. Survey participants were asked whether they had been diagnosed with any of the following conditions: asthma, chronic back pain, allergies, blindness or serious vision problems that cannot be corrected with glasses, hearing impairment, epilepsy, emphysema, psychological or nervous disorders, cognitive or mental disability, ADD/ADHD, learning disability, stomach or intestinal problems, HIV/AIDS, hepatitis, tuberculosis, diabetes, anemia, fetal alcohol spectrum disorder (FASD), chronic ear infections, liver disease (excluding hepatitis), or dermatitis or atopic eczema.

The RHS 2008/10 also included questions about common covariates of health conditions: gender, substance use (e.g., cigarette smoking, alcohol consumption, illicit drug use), body mass index (BMI), education-related questions, symptoms of depression, and suicide ideation and suicide attempts.

Participants' responses to the health conditions variables were recoded to create a dichotomous variable: "at least one health condition" versus "no health condition." Similarly, treatment seeking was also dichotomized into "undergoing treatment for condition" versus "not undergoing treatment for condition." To assess co-morbidity of conditions, participants were categorized as having zero, one, two, or three or more health conditions.

To assess whether those with at least one health condition differed from those with no health conditions with respect to the health-related variables or behaviours (e.g., obesity, drug use) cross tabulations were used. Percentages and 95% confidence intervals are reported

RESULTS

Distribution of Health Conditions

The RHS 2008/10 revealed that 37.8% (95% CI [35.7, 39.9]) of First Nations youth reported having been diagnosed with at least one health condition. No gender differences were observed. The most commonly reported health conditions were allergies (16.0%), asthma (12.7%), learning disabilities (5.8%), and dermatitis (4.3%; see Table 24.1).

Regarding co-morbidity of health conditions among First Nations youth, 10.1% reported having been diagnosed with two health conditions and 6.3% reported having been diagnosed with three or more health conditions (95% CIs [8.9, 11.5] and [5.4, 7.4], respectively.

Table 24.1. Distribution of Health Conditions, RHS 2002/03 vs. RHS 2008/10

Health Condition	RHS 2002/03 % [95% CI]	RHS 2008/10 % [95% CI]
ADD/ADHD	2.4 [1.9, 3.1]	3.8 [3.0, 4.7]
Allergies	15.1 [13.3, 17.0]	16.0 [14.6, 17.6]
Anemia (chronic)	n/a	1.5 ^E [1.1, 2.2]
Asthma	13.6 [11.7, 15.7]	12.7 [11.3, 14.3]
Blindness or serious vision problems that cannot be corrected with glasses	1.9 [1.4, 2.5]	3.5 [2.7, 4.4]
Cerebral palsy	F	n/a
Chronic bronchitis	2.4 [1.8, 3.0]	1.5 [1.1, 2.0]
Chronic ear infections	4.8 [3.9, 5.8]	2.6 [2.0, 3.2]
Cognitive or mental disability	0.8 [0.6, 1.1]	0.8 ^E [0.5, 1.3]
Dermatitis or atopic eczema	n/a	4.3 [3.5, 5.2]
Diabetes	0.8 ^E [0.6, 1.1]	0.8 ^E [0.6, 1.2]
Epilepsy	0.4 ^E [0.2, 0.6]	1.0 ^E [0.7, 1.6]
FASD	n/a	0.8 ^E [0.5, 1.3]
Hearing impairment	1.7 [1.3, 2.2]	1.9 [1.5, 2.5]
Hepatitis	F	F
HIV/AIDS	F	F
Kidney disease	0.4 ^E [0.2, 0.7]	n/a
Learning disability	3.5 [2.9, 4.2]	5.8 [5.0, 6.8]
Liver disease	F	F
Physical disability	0.8 [0.6, 1.0]	n/a
Psychological or nervous disorder	1.2 [0.9, 1.5]	1.7 ^E [1.2, 2.4]
Stomach or intestinal problems	n/a	3.9 [3.1, 4.7]
Tuberculosis	0.7 ^E [0.5, 1.1]	0.6 ^E [0.3, 1.0]

n/a = not assessed at time point

F = suppressed due to low cell count (n < 5) or very high CV (>.333).

^E = interpret with caution, high CV (.166 to .332)

Table 24.2. Percentage of First Nations Youth Seeking Treatment or Taking Medication (of those who were diagnosed with the condition), RHS 2002/03 vs. RHS 2008/10

Health Condition	RHS 2002/03 % [95% CI]	RHS 2008/10 % [95% CI]
ADD/ADHD	34.2 ^E [21.8, 49.2]	45.0 [34.6, 55.8]
Allergies	26.3 [20.9, 32.5]	39.1 [34.4, 44.1]
Anemia (chronic)	n/a	70.9 [53.8, 83.6]
Asthma	55.9 [49.6, 62.0]	57.5 [51.7, 63.1]
Blindness or serious vision problems that cannot be corrected with glasses	16.7 ^E [9.3, 28.1]	48.0 [37.3, 58.9]
Cerebral palsy	F	n/a
Chronic bronchitis	16.5 ^E [10.2, 25.8]	37.9 ^E [24.5, 53.5]
Chronic ear infections	33.6 [25.8, 42.4]	25.2 ^E [17.5, 34.8]
Cognitive or mental disability	F	57.6 ^E [32.4, 79.4]
Dermatitis or atopic eczema	n/a	69.7 [55.3, 81.0]
Diabetes	64.8 [47.0, 79.3]	65.9 [44.3, 82.5]
Epilepsy	55.3 ^E [32.4, 76.1]	68.2 [46.6, 84.1]
FASD	n/a	F
Hearing impairment	F	35.6 ^E [23.0, 50.5]
Hepatitis	F	F
HIV/AIDS	F	F
Kidney disease	F	n/a
Learning disability	12.6 ^E [8.3, 18.7]	44.3 [35.7, 53.2]
Liver disease	F	F
Physical disability	37.2 ^E [21.7, 55.8]	n/a
Psychological or nervous disorder	18.1 ^E [10.5, 29.4]	42.0 ^E [25.0, 61.0]
Stomach or intestinal problems	n/a	41.9 [31.9, 52.7]
Tuberculosis	F	F

n/a = not assessed at time point

^F = suppressed due to low cell count ($n < 5$) or very high CV ($> .333$).

^E = interpret with caution, high CV (.166 to .332)

Allergies

Allergies were the most common health conditions among First Nations youth (16.0%; see Table 24.1). No change in distribution was observed between RHS 2002/03 and RHS 2008/10. However, improvements were seen; in RHS 2008/10, a higher proportion of First Nations youth with allergies reported that they were currently undergoing treatment or taking medication compared to RHS 2002/03 (39.1% in RHS 2008/10 vs. 26.3% in RHS 2002/03, 95% CIs [34.4, 44.1] and [20.9, 30.5], respectively; see Table 24.2).

The presence of allergies varied between genders; a higher proportion of First Nations girls reported having allergies (13.5% of boys vs. 18.5% of girls, $p < .05$).

Asthma

The second most commonly reported health condition among First Nations youth was asthma, at 12.7% (95% CI [11.3, 14.3]; see Table 24.1). This was comparable to the presence of asthma observed in the general Canadian population; approximately 11.5% of Canadian youth aged 12 to 19 years reported having asthma (Statistics Canada, 2005).

Approximately 20% (95% CI [15.8, 24.5]) of First Nations youth with asthma reported having had an asthma attack within the year prior to the survey. The presence of asthma and the recent occurrence of asthma attacks did not differ between boys and girls.

Overall, 57.5% (95% CI [51.7, 63.1]) of First Nations youth with asthma reported that they were currently undergoing treatment or taking medication for their condition (see Table 24.2).

The mean age of asthma diagnosis was approximately 5 years old (95% CI [4.96, 5.75]); however, a substantial proportion of First Nations youth (29.4%, 95% CI [24.3, 35.1]) were diagnosed with asthma before their first birthday.

The percentage of First Nations youth with asthma, and the percentage of those with asthma seeking treatment or taking medication for their condition, did not differ between RHS 2002/03 and RHS 2008/10.

ADD/ADHD and learning disabilities

Approximately 6% of First Nations youth reported having a learning disability, and approximately 4% reported having been diagnosed with ADD/ADHD (95% CIs [5.0, 6.8] and [3.0, 4.7], respectively; see Table 24.1). The average age of diagnosis for both ADD/ADHD and learning disabilities was 8 years.

Regarding gender differences, a higher proportion of First Nations boys reported having been diagnosed with a learning disability (7.4% of boys vs. 4.2% of girls, $p < .05$) or ADD/ADHD (5.1% of boys vs. 2.3% of girls, $p < .05$).

The presence of learning disabilities has increased (5.8% in RHS 2008/10 vs. 3.5% in RHS 2002/03, 95% CIs [5.0, 6.8] and [2.9, 4.2], respectively) and the presence of ADD/ADHD was unchanged since RHS 2002/03.

Among First Nations youth with learning disabilities or ADD/ADHD, slightly fewer than half reported that they were currently undergoing treatment or taking medication for a learning disability or for ADD/ADHD (44.3% and 45.0%, respectively, 95% CIs [37.5, 53.2] and [34.6, 55.8]; see Table 24.2).

Other health conditions

Fortunately, fewer than 5% of First Nations youth reported having been diagnosed with any of the other health conditions (anemia, dermatitis or atopic eczema, blindness or serious vision problems that cannot be corrected with glasses, hearing impairment, tuberculosis, psychological or nervous disorders, cognitive or mental disability, FASD, chronic ear infections, chronic bronchitis, diabetes, HIV/AIDS, hepatitis, or epilepsy (see Table 24.1).

Compared to RHS 2002/03, in RHS 2008/10, more First Nations youth reported blindness or serious vision problems that could not be corrected with glasses (3.5% vs. 1.9%) and epilepsy (4.8% vs. 2.6%, 95% CIs [2.7, 4.4], [1.4, 2.5], [3.9, 5.8], and [2.0, 3.2], respectively; see Table 24.1). Comparisons in the distribution of stomach and intestinal problems, anemia, FASD, and dermatitis or atopic eczema could not be reported on because these conditions were not included in RHS 2002/03.

Large variations were observed between health conditions in the percentage of those afflicted undergoing treatment or taking medication. Almost 70% of First Nations youth who reported being diagnosed with anemia, epilepsy, diabetes, or dermatitis or atopic eczema also reported that they were undergoing treatment or taking medication for these conditions, while fewer than half of First Nations youth who reported being diagnosed with tuberculosis, chronic bronchitis, or stomach or intestinal problems also reported currently undergoing treatment or taking medication for these conditions.

Perceived Health Status

General health status

First Nations youth were asked whether they perceived their general health as “very good/excellent,” “good,” “fair,” or “poor.” Overall, the majority of First Nations youth (65.4%) reported that their general health was “very good/excellent.” Only 0.8% reported their general health as “poor” (95% CIs [63.0, 67.7] and [0.6, 1.2], respectively). No gender differences were observed with regards to perceived general health status.

A lower proportion of First Nations youth with at least one health condition rated their general health as “very good/excellent” compared to those with no health conditions. Seventy percent of First Nations youth who reported not being diagnosed with a health condition rated their general health as “very good/excellent,” whereas 62.4% of those who reported having been diagnosed with one health condition, 52.2% of those who reported having been diagnosed with two health conditions, and 51.6% of those who reported having been diagnosed with three or more health conditions rated their general health as “very good/excellent” (95% CIs [67.7, 73.7], [57.9, 66.6], [46.2, 58.2], and [44.0, 59.1], respectively). Regardless of whether First Nations youth reported being diagnosed with a health condition, the number of those who rated their general health as “poor” remained low. The one exception to this finding was in regards to diabetes, as 11.5% (95% CI [4.9, 24.6]) of First Nations youth who reported having diabetes also rated their general health as “poor.”

Mental health status

First Nations youth were asked whether they perceived their mental health as “very/good excellent,” “good,” “fair,” or “poor.” Overall, the majority of First Nations youth, 64.8%, reported that their mental health was “very good/excellent.” Only 0.8% reported their mental health as “poor” (95% CIs [62.4, 67.2] and [0.6, 1.1], respectively.) No differences were observed between genders with regards to perceived mental health status.

A lower proportion of First Nations youth with at least one health condition rated their mental health as “very good/excellent” compared to those with no health conditions (59.4% vs. 69.7%, 95% CIs [55.7, 63.1] and [66.5, 72.8], respectively). No differences were observed among First Nations youth with or without a health condition when their rating of their mental health was “good,” “fair,” or “poor.”

When individual health conditions were analyzed, First Nations youth with diabetes were the most likely to

report poor mental health, at 20.9%, followed by those with a cognitive or mental health disability, at 7.1% (95% CIs [12.5, 33.0] and [2.2, 20.7], respectively).

Depression, suicide ideation, and suicide attempts

A higher proportion of First Nations youth who reported having been diagnosed with at least one health condition reported feeling sad, blue, or depressed in the year prior to the survey compared to those who had not been diagnosed with a health condition (31.6% vs. 20.6%). Similarly, a higher proportion of First Nations youth with at least one health condition reported having thought about suicide (23.0% vs. 12.0%), or having attempted suicide (8.1% vs. 4.5%) compared to those who had not been diagnosed with a health condition.

A higher proportion of youth with certain health conditions reported feelings of depression, suicide ideation, and suicide attempts. More specifically, this was the case for First Nations youth who reported being diagnosed with psychological or nervous disorders, or diabetes.

Changes in perceived health status

First Nations youth were asked whether they felt their health had improved, remained the same, or worsened over the year prior to the survey. Only 6.5% (95% CI [5.6%, 7.6%]) of First Nations youth reported that their health had worsened during the past year. First Nations youth with at least one health condition were more likely to perceive that their health had worsened during the past year compared to those without a health condition (8.7% vs. 4.8%, 95% CIs [7.2, 10.5] and [3.7, 6.3], respectively).

Health Conditions and Determinants of Health

Nutrition

The majority (77.3%, 95% CI [75.1, 79.4]) of First Nations youth reported eating a nutritious diet at least sometimes. No differences were observed between those with and those without a health condition in their tendency to eat a nutritious diet.

Body mass index (BMI)

Utilizing BMI, First Nations youth were categorized as either normal or underweight, overweight, or obese. Almost half of First Nations youth were categorized as overweight or obese (30.0% and 13.0%, respectively, 95% CIs [28.0, 31.8] and [11.6, 14.1]). With respect to BMI, no differences were observed between First Nations youth without or without a health condition, with the exception of those with diabetes. A higher proportion of First Nations youth who reported having

been diagnosed with diabetes were categorized as obese compared to those without diabetes (27.9% vs. 12.7%, 95% CIs [16.1, 43.8] and [11.4, 13.8], respectively).

Substance use

Compared to those without a health condition, a higher proportion of First Nations youth who were diagnosed with at least one health condition reported having consumed alcohol in the year prior to the survey (45.0% vs. 35.1%). No differences were observed in the frequency of drinking or binge drinking in that year.

No differences were observed in substance use (cannabis, cocaine, amphetamines, inhalants, sedatives, hallucinogens, opioids) or smoking rates (daily, occasionally) among First Nations youth with or without a health condition.

Health Conditions and Educational Enrollment, Attitudes and Aspirations

First Nations youth who reported having been diagnosed with at least one health condition were no more or less likely than those without a health condition to be currently attending school.

When asked to rate how they felt about school (“dislike very much,” “dislike somewhat,” “unsure,” “somewhat like,” “very much like”), the majority of First Nations youth (80.4%) reported that they “somewhat like/very much like” school. A lower proportion of First Nations youth who reported having been diagnosed with at least one health condition indicated that they liked school compared to those without a health condition (76.5% vs. 84.1%, 95% CIs [78.7, 82.1], [73.2, 79.4], and [81.9, 86.1], respectively.) In addition, a higher proportion of youth who were diagnosed with a health condition reported that they had experienced learning problems at school (52.1% vs. 30.3%). On a more positive note, when asked about their future educational aspirations, First Nations youth who reported having been diagnosed with a health condition were just as motivated to complete a post-secondary education as those without a health condition.

Health Conditions and Visits to Health Professionals

First Nations youth were asked to report how frequently (“never,” “in the past 12 months,” “in the past 1 to 4 years”) they had visited three types of health care providers: a traditional healer, a doctor or community health nurse, or a mental health service provider (e.g.,

for counselling, psychological testing). Compared to First Nations youth with no health conditions, a higher proportion of those who reported having been diagnosed with at least one health condition had visited a doctor (77.4% vs. 66.8%) or a mental health professional (19.9% vs. 9.9%) in the year prior to the survey; no significant difference was observed in the proportion of youth who visited a traditional healer (13.7% vs. 10.8%).

DISCUSSION

First Nations youth are at a high risk of developing chronic health conditions such as diabetes or heart disease later in life. Although a substantial proportion of First Nations youth reported having been diagnosed with at least one health condition, many of these conditions, such as allergies or asthma, tended to be fairly controllable with treatment and/or medications. Despite having been diagnosed with a health condition, First Nations youth still tended to rate both their general health and their mental health as “good,” or “very good/excellent,” with very few First Nations youth rating their health as “poor” (fewer than 3%).

Differences between genders were observed in the distribution of certain health conditions. For example, First Nations boys were more likely than girls to report having been diagnosed with ADD/ADHD or learning disorders. This finding may be attributable to other factors, however, as past research has suggested the symptoms of ADD/ADHD and learning disorders are presented more aggressively in boys than in girls (Biederman et al., 2002). Regardless of the reasons behind the condition, a learning disability is likely to affect future educational achievement. Perhaps more striking is that fewer than half of First Nations youth who reported having been diagnosed with ADD/ADHD or learning disorders also reported that they were undergoing treatment or taking medication.

Although First Nations youth did not report high levels for most of the health conditions examined, they did present certain signs of an overall unhealthy lifestyle. Almost half of First Nations youth reported being physically inactive and overweight or obese. Physical activity and maintaining a healthy weight are both protective effects for the future development of a broad range of health conditions, including diabetes and heart disease. It is imperative that First Nations youth be encouraged to make healthier lifestyle choices to reduce the risk of future illnesses.

First Nations youth who reported having been diagnosed with a health condition were shown to have alarmingly high rates of depression and suicide ideation, compared

to those without a health condition. This appears to be the case for particular health conditions, mainly among First Nations youth with psychological or nervous disorders, or diabetes, although rates were also slightly higher among those with hearing or visual impairment, anemia, or learning disabilities. These findings suggest that the mental health of First Nations youth diagnosed with certain health conditions should be more closely monitored by a health care professional. Future research should be conducted to assess what factors lead First Nations youth who are diagnosed with a health condition to experience higher rates of depression and suicide ideation.

It appears that a substantial number of First Nations youth were not currently undergoing treatment or taking medication for some of the more serious conditions they were living with. For example, First Nations youth with epilepsy (30%), diabetes (30%), or FASD (40%) were not currently undergoing treatment or taking medications for these health conditions. A few reasons can be put forth in an attempt to explain why this is the case. First, prescribing treatment or medications for certain health conditions is not straightforward. For epilepsy, treatment varies based on the type and duration of seizures a patient presents with, and only some can be controlled by anti-seizure medication. For FASD, there are currently no standard prescribed treatments. Instead, an attempt is made to control the symptoms a patient presents with, such as memory issues, hyperactivity, or poor social skills (Chudley et al., 2005; Canadian Institutes of Health Research, n.d.). Second, the wording of the question regarding treatment status may have led to an underestimation of the number of First Nations youth who had sought some form of treatment or medication for their condition in their lifetime. In RHS 2008/10, First Nations youth were asked if they were “currently undergoing treatment(s) or taking medication(s) for these condition(s).” Previous successful treatment or medication of the health condition or a current lack of physical manifestation of the health condition may have led some First Nations youth to not require treatment at the time they participated in the survey. Finally, it is possible that some First Nations youth who reported being diagnosed with a health condition required treatment or medication but were unable to obtain it because of barriers to accessing health care, such as gaps in insurance coverage, isolation, or language barriers. Despite this, 80% of First Nations youth who reported having been diagnosed with a health condition also reported having seen a doctor or community health nurse in the year prior to the survey. Future research should be directed at identifying how First Nations youth are

managing their health conditions and what barriers they encounter during the treatment-seeking process.

CONCLUSIONS

Although almost half of First Nations youth reported having been diagnosed with at least one health condition, the vast majority of them reported their perceived health as being at least “good.” The most common conditions that First Nations youth reported having been diagnosed with, allergies and asthma, did not appear to be any more common than was observed among youth in the general Canadian population. First Nations youth did appear to have opportunities to visit with a health professional about possible treatment or medication, as 80% of those who reported having been diagnosed with a health condition also reported visiting a doctor or community health nurse in the year prior to the survey.

First Nations youth are at a high risk of developing serious long-term health conditions in adulthood. The risk associated with developing many of these health conditions, such as diabetes or heart disease, can be lowered by engaging in healthy behaviours such as eating nutritious meals or staying physically active. A large percentage of First Nations youth are overweight or obese and report being physically inactive. Healthy behaviour (e.g., health education, funding for nutritious meals and recreational opportunities) must be promoted and supported both provincially and nationally, in order to benefit both the community (e.g., through opportunities to participate in organized sports and fitness) and the family (e.g., through encouraging physical activity and healthy eating).

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Chapter 25

Oral Health

EXECUTIVE SUMMARY

This chapter examines inequalities in access to dental care, dental pain experience, and self-perceived dental treatment needs among First Nations youth aged 12 to 17 years living on-reserve and in northern communities. Results are based on comparisons between the First Nations Regional Health Survey (RHS) 2008/10, the Oral Health Module of the 2007–09 Canadian Health Measures Survey (CHMS), and previous results from RHS 2002/03. Three-quarters (75.9%) of First Nations youth reported receiving dental care in the year prior to RHS 2008/10. About 9% more (84.5%) youth aged 12 to 19 years in the general Canadian population received dental care in the year prior to the CHMS. Factors influencing greater access to dental care by First Nations youth include having parents or guardians who have more than a high school education; having an appreciation for and participating in traditional cultural events; attending school regularly and not repeating a grade; having good self-rated mental health and not feeling depressed for two weeks or more in a row in the past 12 months; eating a nutritious, balanced diet; and not smoking.

A total of 21.1% of First Nations youth (26.0% females and 16.4% males) reported having dental pain in the month prior to the survey. In RHS 2002/03, 19.1% of First Nations youth experienced some dental pain in the month prior to the survey, while in the CHMS, 10.4% of Canadians aged 12 to 19 years (7.6% males and 13.4% females) reported mouth pain in the 12 months prior to that survey. In addition, 5.3% of First Nations youth reported dental injury in the 12 months prior to the RHS, 3.1% for those aged 12 to 14 years and 7.2% for those aged 15 to 17 years. The highest prevalence of dental injury (9%) occurred in females aged 15 to 17 years. The occurrence of dental pain was associated with health determinants very similar to those that influenced access to care, but dental injuries proved less of a concern for this cohort of adolescent First Nations.

Nearly 78% of First Nations youth perceived a need for dental treatment, compared to 24.9% of Canadians aged 12 to 19 years, whose dental needs were clinically assessed in the CHMS. The most common treatment needs reported by First Nations youth was maintenance, such as checkups and cleanings (57.1%), followed by restorative (42.0%) and orthodontic (13.9%) needs, the latter most frequently reported among females (16.5%). Self-perceived need of dental care has increased for all types of treatment since RHS 2002/03, most notably for regular maintenance and restorative procedures. The CHMS findings for Canadians aged 12 to 19 years show that 13.0% required restorations and 6.4% needed orthodontics, numbers much lower than those found in the RHS. Despite differences in methodologies, First Nations youth appear to have more dental care needs than youth in the general population, particularly where restorative and orthodontic treatments are concerned.

Though First Nations youth have a slightly lower rate of access to dental care than youth in the general Canadian population, the RHS data consistently show that the experience of dental pain remains unequal. First Nations youth also report more dental care needs. These data provide evidence to support addressing the determinants of First Nations' health to improve the oral health status of their youth.

KEY FINDINGS

- Three in four (75.9%) First Nations youth reported receiving dental care in the year prior to RHS 2008/10, yet 21.1% had experienced a recent episode of dental pain in the month prior to the survey.
- Having parents or guardians who have more than a high school education, having an appreciation of traditional culture and participating in community cultural events, attending school regularly and not repeating a grade, having good self-rated mental health and not feeling depressed for two weeks or more in a row in the past 12 months, eating a nutritious and balanced diet, and not smoking were factors associated with increased access to dental care.
- The occurrence of dental pain was associated with understanding or speaking a First Nations language, not attending school, repeating a grade or having problems learning at school, having poor self-rated general and mental health, having depression or diabetes or being very dissatisfied with one's weight, drinking soft drinks and eating sweets several times per day and rarely eating a nutritious, balanced diet, and smoking.
- Overall, 5.3% of First Nations youth reported a dental injury in the 12 months prior to the survey, 3.1% for those aged 12 to 14 years and 7.2% for those aged 15 to 17 years. The highest prevalence of dental injury (9%) occurred in females aged 15 to 17 years.
- Over three quarters (77.7%) of First Nations aged 12 to 17 years perceived a need for dental treatment, compared to 24.9% of Canadians aged 12 to 19 years, whose dental needs were clinically assessed in the 2007–09 CHMS.
- The most common treatment needs reported by First Nations youth was maintenance, such as checkups and cleanings (57.1%), followed by restorative (42.0%) and orthodontic (13.9%) needs, the latter most frequently reported among females (16.5%). The next most common was fluoride treatment (13.7%), most frequently reported by those aged 12 to 14 years (16.6%). This was followed by the need for extractions (7.2%). Periodontic, prosthodontic, and urgent care needs were each found among 2.1%, 1.1%, and 1.1% of First Nations youth, respectively.
- Self-perceived need of dental care among First Nations youth has increased for all types of treatment compared to the findings of RHS 2002/03, most notably for regular maintenance and restorative procedures.
- First Nations youth appear to require more restorative and orthodontic treatment than youth in the general Canadian population (57.1% vs. 13.0%, and 13.9% vs. 6.4%, respectively).

INTRODUCTION

Access to oral health care is demonstrably poorer among First Nations people living in First Nations communities than it is among the general Canadian population. However, survey data from the youth component of RHS 2002/03 (First Nations Information Governance Committee [FNIGC], 2005) indicated that the receipt of dental care in the year prior to the survey was high, almost 79%, among First Nations youth, which was comparable to the national rate for Canadian youth. At the same time, RHS data on self-reported dental needs also showed that a large proportion of First Nations youth said they needed maintenance-type services, such as checkups or teeth cleaning (42%), followed by nearly 37% who said they required dental fillings or other types of restorative treatment (FNIGC, 2005). These findings suggest that First Nations youth may be utilizing dental services for emergency care only when oral symptoms arise. When people experience symptoms of oral disease, such as pain, swelling, and bad breath, they are more likely to perceive a need for dental care, which can, in turn, influence their likelihood of accessing care.

This chapter examines access to oral health care services and the prevalence of perceiving a current need for individual types of dental care among First Nations youth aged 12 to 17 in RHS 2008/10. A comparison of RHS findings from 2008/10 with those of RHS 2002/03 provides insight into the change in the levels of access to dental services provided to First Nations youth and their perception of their dental care needs. In addition, the recently released report on the findings of the oral health component of the 2007–09 Canadian Health Measures Survey (CHMS) allows us to test the hypothesis that First Nations youth are less likely to access dental services than are youth in the general Canadian population (Health Canada, 2010b).

One of the most devastating consequences of decreased access to preventive and restorative dental care is the onset of dental pain or toothache. Toothache in children and youth is mainly due to dental decay (cavity) or a tooth abscess. If left untreated, the pain can persist and become disabling to the point of having an impact on oral health-related quality of life (Milnes, Rubin, Karpa, & Tate, 1993; Schroth, Harrison, & Moffatt, 2009). Thus the experience of toothache signals the need for urgent care, as acting quickly on symptoms can result in less frequent complications and can prevent tooth loss when young people reach adulthood.

Disparities in self-reported experience of toothache

are well recognized, with poor and low-income ethnic minorities and those with special health care needs being disproportionately represented (Lewis & Stout, 2010; Slade, 2001). In RHS 2002/03, a relatively sizeable percentage (19.1%) of First Nations youth had had a recent episode of dental pain (FNIGC, 2005). Still, this prevalence was not as high as the 26.2% of Aboriginal Australians aged 16 to 20 years who reported having “trouble with their teeth, gum or jaw right now” when interviewed as part of Wave-3 of the dental component of the Aboriginal Birth Cohort (ABC) study, a prospective longitudinal investigation of Aboriginal individuals born in 1987–90 (Jamieson, Roberts-Thomson, & Sayers, 2010b).

Dental pain can also result from traumatic dental injuries. Such injuries usually affect the front (anterior) teeth where dental caries tends to be less prevalent. Injuries to teeth vary greatly in severity, from minor cracks in the enamel to major damage involving complicated tooth fractures, from the tooth being moved from its natural position (displacement) to the tooth being knocked out of the socket (avulsion of teeth). In general, injury rates are higher in youth than in any other age group, and the RHS 2002/03 results showed that First Nations youth are at much greater risk of physical injury than other Canadians. Dental injuries, in particular, were reported by 4.3% of youth in RHS 2002/03—3.7% among those aged 12 to 14 years and 4.8% among those aged 15 to 17 years. These age-specific prevalence estimates were lower than the prevalence of 11.4% of dental injuries to the permanent incisors of schoolchildren aged 12 to 14 years in Ontario (Fakhruddin, Lawrence, Kenny, & Locker, 2008). The difference in prevalence can be explained by the fact that RHS 2002/03 asked about injuries serious enough to require medical attention, while the study undertaken in Ontario schools was based on clinical evidence of traumatized teeth and included mostly minor fractures of the enamel that would not commonly require medical attention. To date, there has been little documentation of dental injury rates among First Nations populations. Estimating the magnitude of this problem is therefore important because some types of dental injuries that occur mainly among youth can be prevented. For instance, many sports injuries can be prevented or made less serious by wearing a mouthguard (Fakhruddin, Lawrence, Kenny, & Locker, 2007).

METHODS

The same oral health-related questions included in RHS 2002/03 were included again in RHS 2008/10. All youth were first asked when they had last received dental care for any reason. The following frequencies

were provided: less than six months ago, between six months and one year ago, between one and two years ago, between two and five years ago, more than five years ago, and never. Participants' responses were later classified as "having dental care within the past year" or "having dental care more than one year ago or never" because most children, youth, and adults should see their dentist for a regular cleaning and checkup every six months or at least once every year.

Youth were also asked what type of dental treatment they thought they currently needed. Respondents could select multiple responses from the following: none; cavities filled or other restorative work (e.g., fillings, crowns, and bridges); maintenance (e.g., checkups or teeth cleaning); extractions (taking teeth out); fluoride treatment; periodontal (gum) treatment; prosthetics (e.g., denture work, including repair and maintenance); urgent care (dental problems requiring immediate attention); orthodontics (e.g., braces); other.

The last question specific to oral health asked whether the respondent had experienced any dental problems or pain in the month prior to the survey, with "yes," "no," "don't know," or "refused" as response options. "Don't know" and "refused" responses were interpreted as missing data for the purpose of analysis.

With regard to dental injuries, youth were initially asked whether, in the year prior to the survey, they had been injured. For those who answered in the affirmative, a second question asked whether they had experienced any of a list of injuries, including dental injury. For a given type of injury, respondents could answer "yes" or "no." They could also answer "yes" to more than one type of injury and to being injured more than once during the past year. The question on injuries in RHS 2008/10 differed from the question in RHS 2002/03, which asked about injuries "that required the attention of a health care professional."

The data analysis was guided by the RHS Cultural Framework, in which oral health is viewed through a holistic lens (Dumont, 2005). The framework sees good oral health as more than just the absence of disease, with a healthy and pain-free mouth contributing to the physical, mental, and social well-being of First Nations people. The analysis focused on the health determinants that have an impact on accessibility to dental care and on the experience of dental pain. Key variables assessed included age and sex; parental level of education; the importance of and participation in traditional cultural activities; the ability to understand or speak a First Nations language; measures of school attendance and performance; self-rated general

health status and health conditions, such as diabetes and obesity; personal wellness measures, such as self-rated mental health status and symptoms of depression; dietary habits; and cigarette smoking. Geographic location can also limit access to timely dental care needed to prevent the onset and progression of cavities and periodontal disease. Unlike in RHS 2002/03, measures of geographic isolation and health transfer status of the community where each respondent resides have not been considered here since these determinants of disease have been well articulated in the past and are now well understood.

Data from RHS 2008/10 were compared to those from RHS 2002/03 and to the Canadian population and Aboriginal off-reserve population data from the CHMS where appropriate (FNIGC, 2005; Health Canada, 2010b). There were some comparability issues between the RHS and the CHMS that made it difficult to show comparative statistics for First Nations and other youth. Essentially, the Canadian results included a wider age range than the RHS, with respondents aged 12 to 19 years rather than 12 to 17 years. In addition, the term "Aboriginal people" as used by the CHMS includes First Nations, Métis, and Inuit peoples, and because the number of Aboriginal respondents in the CHMS was small, many of the results were withheld because the estimates were unreliable.

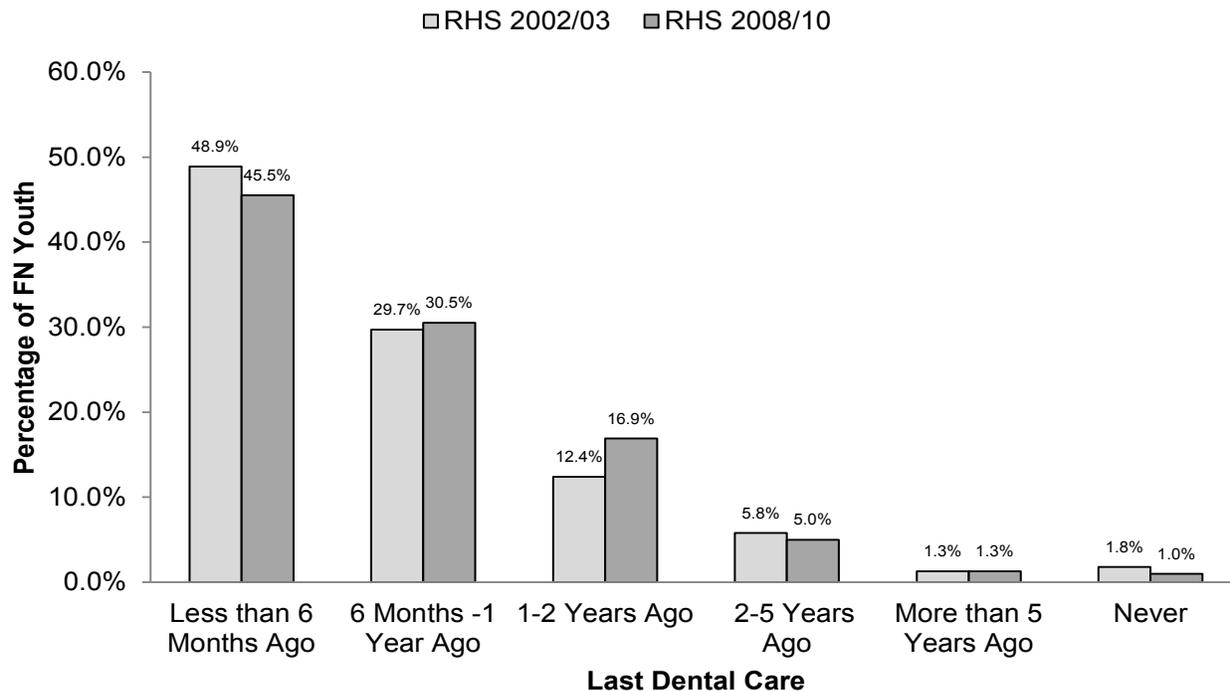
For the most part, this chapter reports only on those differences in proportions that were statistically significant.

RESULTS

Access to Dental Care

Just over three-quarters (75.9%) of First Nations youth reported receiving dental care for any reason in the year prior to the survey, while approximately 17% had received dental care between one and two years previously and 6.3% more than two years previously (see Figure 25.1). Compared to the results from RHS 2002/03, utilization rates have decreased slightly for First Nations youth, as nearly 79% of First Nations youth received some form of dental care in the year prior to RHS 2002/03.

Figure 25.1. Last Time Dental Care was Obtained in RHS 2002/03 (n = 4,983) and RHS 2008/10 (n = 4,510)]

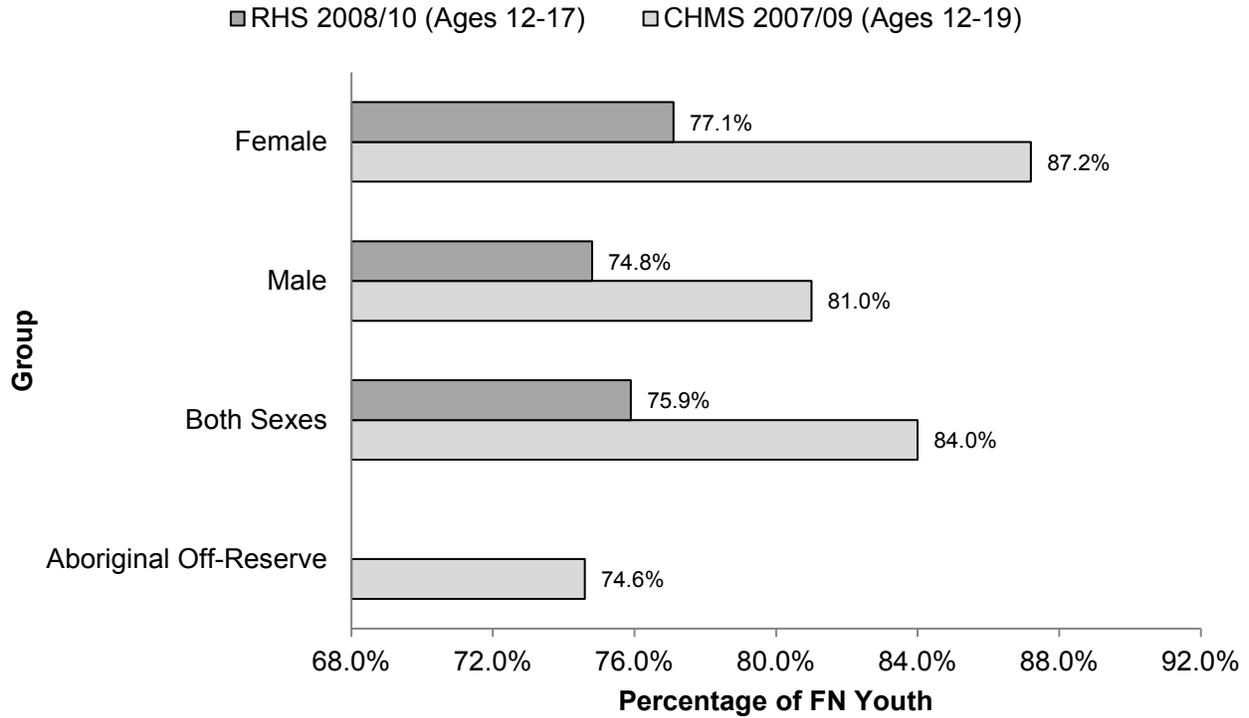


Note. E = High sampling variability—coefficient of variation is 16.6% to 33.3%; interpret estimate with caution.

The prevalence of dental care did not differ significantly between females and males but was lower for the RHS population than for the CHMS population (see Figure 25.2). About 8% more youth aged 12 to 19 years in the general Canadian population (84.0%) had had some dental care in the 12 months prior to the CHMS survey, compared to 75.9% of First Nations living on-reserve and in northern communities in RHS 2008/10 and 74.6% of Aboriginal people living off-reserve in the CHMS (Health Canada, 2010b). As noted above, the sample of youth claiming Aboriginal heritage in the CHMS was very small and made up only 5.6% of the Canadian youth covered in that study (Health Canada, 2010b). This resulted in estimates in the CHMS report having a cautionary note or being suppressed because of extreme sampling variability.

As seen in Table 25.1, factors influencing greater access to dental care by First Nations youth include having parents or guardians who have more than a high school education; having an appreciation of traditional culture and participating in community cultural events; attending school regularly and not repeating a grade; having good self-rated mental health and not feeling sad, blue, or depressed for two weeks or more in a row in the past 12 months; and eating a nutritious, balanced diet and not smoking.

Figure 25.2. Percentage of Youth Reporting any Dental Care in the 12 months prior to the CHMS 2007–09 (n = 1,008) and RHS 2008/10 (n = 4,510)



Dental Pain

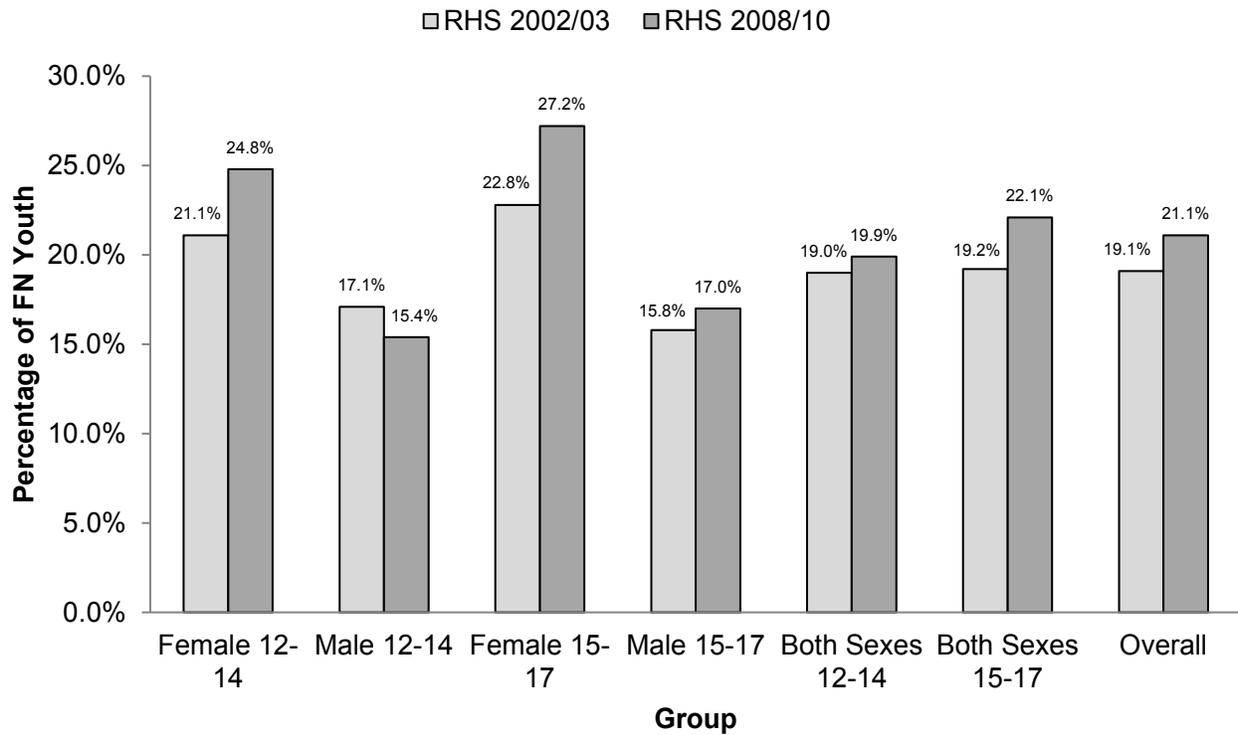
In RHS 2008/10, 21.1% of First Nations youth reported dental problems or pain (toothache) in the month prior to the survey, compared to 19.1% of youth in RHS 2002/03 (see Figure 25.3). The highest prevalence of dental pain was among females aged 15 to 17 years (27.2%). Dental pain was least frequently reported by males aged 12 to 14 years (15.4%). Compared to RHS 2002/03, the prevalence of dental pain increased among all gender and age groups, except for adolescent males aged 12 to 14

Table 25.1. Percentage of First Nations Youth Reporting any Dental Care in the 12 Months Prior to the Survey, by Selected Determinants of Health

Health determinant (unweighted <i>n</i>)	Dental care in the 12 months prior to the survey	
	%	95% CI
All (4,510)	75.9	[73.8, 77.9]
Mother or guardian has less than high school diploma (2,876)	73.6	[71.1, 76.0]
Mother or guardian has more than high school diploma (1,247)	83.7	[79.7, 87.1]
Father or guardian has less than high school diploma (2,832)	74.7	[72.3, 77.0]
Father or guardian has more than high school diploma (677)	86.5	[83.3, 89.2]
Rated importance of traditional cultural events		
Very important (1,849)	77.6	[74.4, 80.4]
Somewhat important (1,790)	76.1	[73.0, 79.0]
Not very important (475)	71.9	[67.3, 76.1]
Not important (232)	66.9	[58.6, 74.3]
Participates in community cultural events		
Always/almost always (1,116)	76.0	[72.2, 79.4]
Sometimes (2,217)	79.3	[76.5, 81.8]
Rarely (751)	71.9	[66.9, 76.3]
Never (359)	66.1	[60.1, 71.5]
Not currently attending school (433)	62.0	[54.4, 69.1]
Attending school (4,049)	78.0	[75.9, 79.9]
Has never repeated a grade (3,004)	79.2	[76.8, 81.4]
Has repeated a grade (1,453)	69.2	[65.6, 72.6]
Self-rated mental health		
Excellent/very good/good (4,238)	76.2	[74.1, 78.2]
Fair/poor (247)	69.6	[62.3, 76.1]
Did not feel depressed for 2+ wks in a row in the past 12 months (3,199)	77.2	[74.8, 79.4]
Felt depressed for 2+ wks in a row in the past 12 months (1,024)	72.9	[69.0, 76.6]
Eats a nutritious, balanced diet		
Always/almost always (1,092)	80.7	[76.4, 84.4]
Sometimes (2,412)	75.4	[72.7, 77.8]
Rarely (711)	75.0	[70.9, 78.7]
Never (152)	65.0	[53.6, 75.0]
Cigarette smoking		
Not at all (3,034)	80.6	[78.3, 82.8]
Daily/occasionally (1,334)	65.1	[61.4, 68.7]

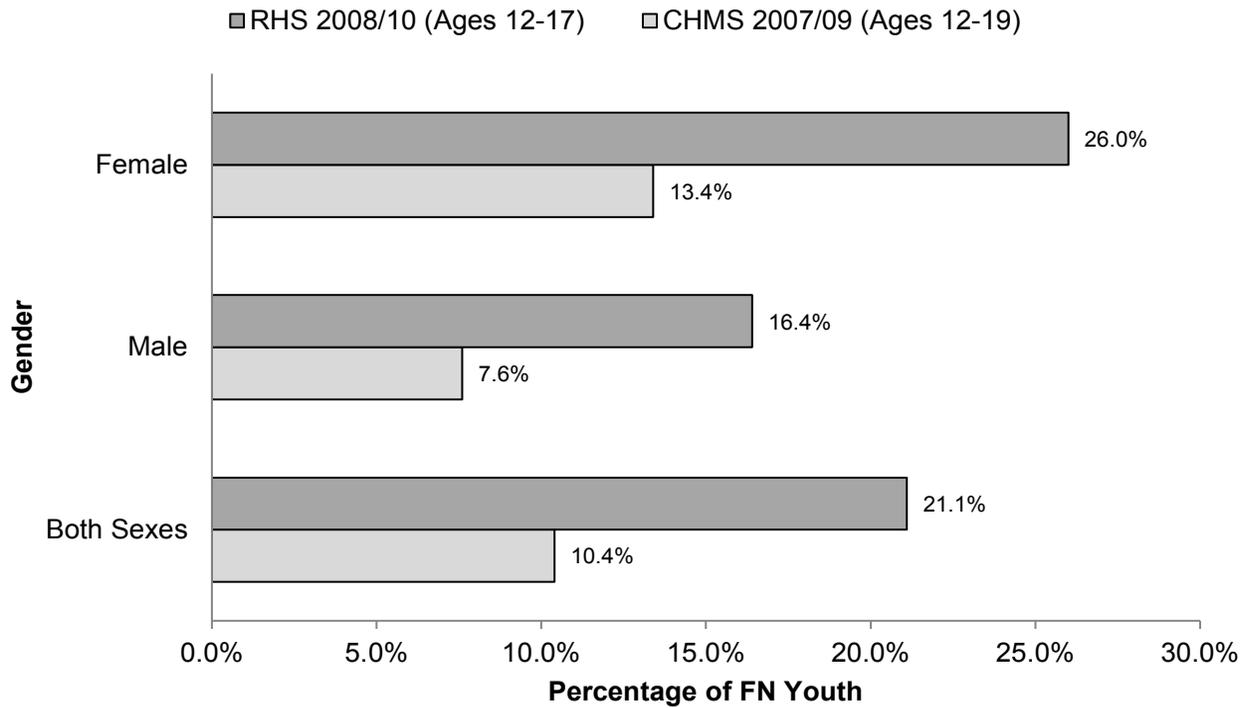
Note. CI = Confidence Interval.

Figure 25.3. Prevalence of Dental Problems or Pain in the Month Prior to the Survey among First Nations Youth, by Gender and Age Group in RHS 2002/03 (n = 4,798) and RHS 2008/10 (n = 4,686)



The proportion of females aged 12 to 17 years reporting a recent episode of any type of dental pain in the month prior to the survey was significantly higher than that of males (26.0% vs. 16.4%; see Figure 25.4). Among those aged 12 to 19 years who participated in the 2007–09 CHMS, 10.4% (13.4% females and 7.6% males) reported persistent pain or ongoing pain somewhere in their mouth in the 12 months prior to the survey (Health Canada, 2010b).

Figure 25.4. Percentage of Youth Reporting Dental Problems or Pain in the CHMS 2007–09 ($n = 1,008$) and RHS 2008/10 ($n = 4,686$)



*Statistically significantly higher for females than males in RHS 2008/10.

Table 25.2 provides the findings on prevalence of pain or problems with teeth experienced by First Nations youth in the month prior to the survey as a function of selected determinants of health. The occurrence of dental pain was associated with understanding or speaking a First Nations language, not attending school, repeating a grade or having problems learning at school, having poor self-rated general and mental health, having depression or diabetes, being very dissatisfied with one’s weight, drinking soft drinks, eating sweets several times per day, rarely eating a nutritious and balanced diet, and smoking. In contrast, dental care in the 12 months prior to the survey had no association with the prevalence of dental pain in the past month (data not shown).

Table 25.2. First Nations Youth Reporting Dental Problems or Pain in the Month Prior to the Survey, by Selected Determinants of Health

Health determinant (unweighted <i>n</i>)	Dental pain in the past month	
	%	95% CI
All (4,686)	21.1	[19.0, 23.3]
Cannot understand or speak a First Nations language (1,989) Can understand or speak a First Nations language (2,491)	17.7 23.0	[15.1, 20.6] [20.1, 26.3]
Not currently attending school (456) Attending school (4,195)	30.8 19.4	[21.3, 42.3] ^E [17.6, 21.3]
Never repeated a grade (3,105) Repeated a grade (1,516)	18.1 26.9	[15.8, 20.6] [23.5, 30.5]
Never had problems learning at school (2,776) Problems learning at school (1,682)	16.9 27.7	[14.1, 20.0] [24.8, 30.8]
Self-rated general health Excellent/very good/good (4,346) Fair/poor (324)	20.0 35.2	[17.8, 22.4] [28.7, 42.4]
Self-rated mental health Excellent/very good/good (4,407) Fair/poor (250)	20.4 32.5	[18.3, 22.7] [26.2, 39.6]
Did not feel depressed for 2+ wks in a row in the past 12 months (3,319) Felt depressed for 2+ wks in a row in the past 12 months (1,066)	16.3 35.2	[14.3, 18.5] [30.5, 40.3]
Non-diabetic (4,465) Diabetic (30)	20.4 40.8	[18.3, 22.7] [26.7, 56.7] ^E
Degree of satisfaction with body weight Very satisfied (1,509) Somewhat satisfied (1,547) Neither satisfied/dissatisfied (662) Somewhat dissatisfied (480) Very dissatisfied (260)	16.8 21.1 22.0 24.0 35.4	[13.6, 20.6] [17.8, 24.7] [17.7, 27.0] [19.7, 29.0] [28.8, 42.6]
Frequency of drinking soft drinks Several times a day (1,192) Once a day (1,119) A few times a week (1,409) About once a week (507) Never/hardly ever (410)	22.4 24.3 19.6 17.2 15.3	[19.1, 26.1] [20.6, 28.4] [16.4, 23.2] [12.8, 22.6] [12.1, 19.1]
Frequency of eating sweets Several times a day (490) Once a day (754) A few times a week (1,625) About once a week (931) Never/hardly ever (773)	29.9 26.9 20.4 15.8 16.4	[25.0, 35.2] [21.4, 33.3] [17.4, 23.7] [12.7, 19.6] [12.8, 20.7]
Eats a nutritious, balanced diet Always/almost always (1,131) Sometimes (2,505) Rarely (733) Never (163)	13.6 21.1 31.6 22.9	[10.0, 18.1] [18.5, 24.0] [27.0, 36.6] [15.3, 32.7] ^E
Cigarette smoking Not at all (3,144) Daily/occasionally (1,396)	17.1 29.8	[15.0, 19.5] [25.9, 33.9]

Note. CI = Confidence Interval.

E = High sampling variability; interpret estimate with caution.

Dental Injuries

Overall, 30.5% of First Nations youth reported being injured in the 12 months prior to the survey, and of those, 5.3% (95% CI [4.1, 6.8]) reported a dental injury. Although the low numbers reporting a dental injury prevent an analysis of factors that may influence the prevalence of traumatized teeth, there was a trend for higher prevalence among females than males (6.3%^E vs. 4.5%, 95% CIs [4.2, 9.3] and [3.3, 6.1], respectively). The prevalence of dental injuries varied significantly by age group: 3.1%^E for those aged 12 to 14 years and 7.2% for those aged 15 to 17 years (95% CIs [1.9, 4.9] and [5.3, 9.8], respectively). The highest rate of dental trauma occurred in females aged 15 to 17 years (9%^E, 95% CI [5.6, 13.9]). In comparison, the prevalence of dental injuries was 3.7% for those aged 12 to 14 and 4.8% for those aged 15 to 17 in RHS 2002/03 (FNIGC, 2005). The slight increase in the prevalence of self-reported tooth injuries over the five-year period between the two phases of RHS could have been the result of wording differences in the questionnaires.

Sixteen percent (16.1%) of Canadian youth had evidence of trauma to their front teeth as reported in the 2007–09 CHMS (Health Canada, 2010b). This is a much higher prevalence than the 5.3% found in RHS 2008/10. It should be noted, however, that evidence of trauma was not assessed clinically in the RHS, which may explain why the RHS estimate is lower than the estimates of incisor trauma in non-Aboriginal youth (15.5%) and off-reserve Aboriginal youth (26.4%) aged 12 to 19 years measured in the 2007–09 CHMS (Health Canada, 2010b).

Perceived Dental Treatment Needs

In RHS 2008/10, 77.7% (95% CI [75.8, 79.6]) of First Nations youth perceived a need for dental treatment. Of these youth, the most common types of treatment needed were maintenance, such as checkups and cleanings (57.1%; see Table 25.3), followed by restorative (42.0%) and orthodontic (13.9%) needs. No gender and age differences were observed with the exception that a higher proportion of females cited orthodontic needs, compared to males (16.5% vs. 11.2%), and a higher proportion of 12-14 year olds cited a need for fluoride treatment, compared to youth 15-17 years (16.6% vs. 12.9%; see Figures 25.5 and 25.6).

Table 25.3. Type of Treatment Required (among those who indicated needing some form of treatment)

Type of dental treatment required (among those requiring treatment)	RHS 2008/10
	% [95% CI]
Restorative (e.g. cavities filled, crowns, bridges)	42.0 [39.7, 44.4]
Maintenance (e.g. check-ups or teeth cleaning)	57.1 [54.6, 59.5]
Dental extractions	7.2 [6.2, 8.3]
Fluoride treatment	13.7 [11.8, 15.7]
Periodontics (gum care)	2.1 [1.5, 2.9]
Prosthodontics (e.g. dentures, including repair and maintenance)	1.1 ^E [0.8, 1.6]
Orthodontics (e.g. braces)	13.9 [12.4, 15.5]
Urgent care (dental problems requiring immediate attention)	1.1 ^E [0.7, 1.5]

^E = Interpret with caution (high sampling variability)
- coefficient of variation 16.6% to 33.3%.

Figure 25.5. Type of Treatment Required (among those who indicated needing some form of treatment) by Gender (n = 4,830)

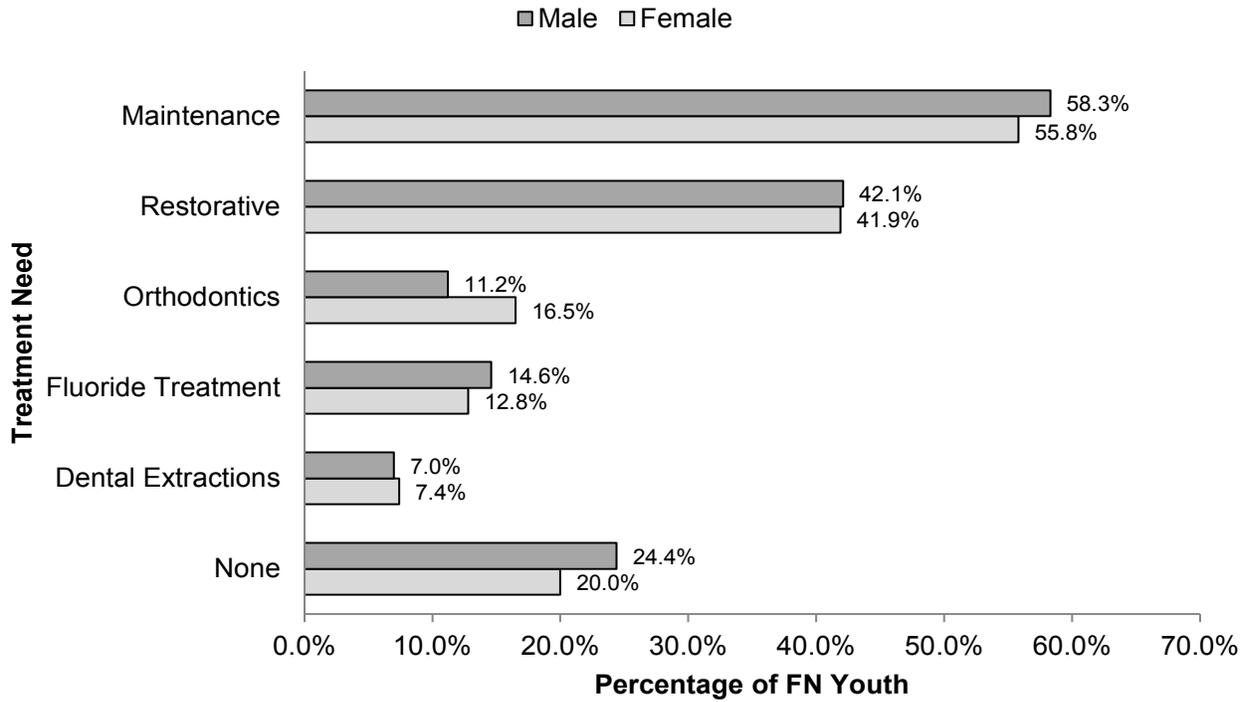
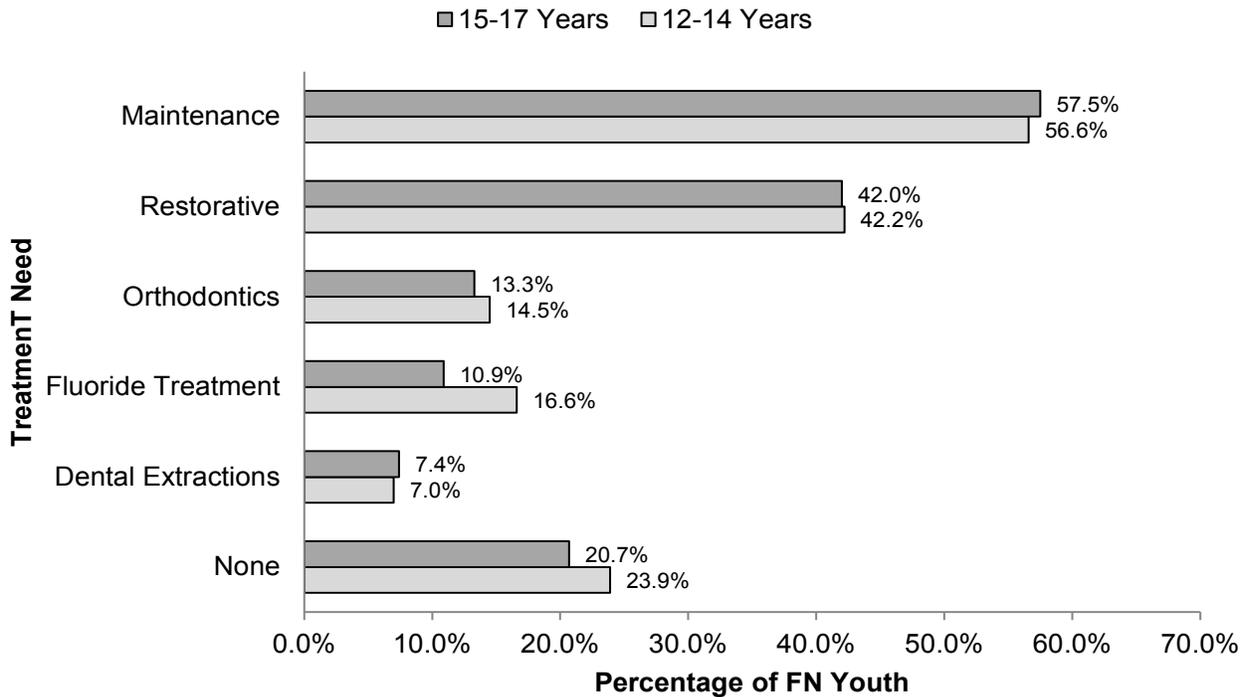


Figure 25.6. Type of Treatment Required (among those who indicated needing some form of treatment) by Age Group (n = 4,817)



Three-quarters (75.1%) of Canadian youth had no treatment needs as identified in the CHMS examinations, compared to 22.3% (95% CI [20.4, 24.2]) of First Nations youth reported in the RHS 2008/10. The CHMS findings for those aged 12 to 19 years show that 13.0% required restorations and 6.4% needed orthodontics (Health Canada, 2010b). These results among Canadian youth are very different from the findings of the RHS. Despite differences in methodologies, First Nations youth appear to have more dental care needs than youth in the general Canadian population, particularly where restorative and orthodontic treatment needs are concerned.

DISCUSSION

The Canadian Dental Association recommends that the interval between oral health checkups for patients under 18 years of age should be no longer than 12 months, though it recognizes that the frequency of dental checkups truly depends upon the patient's oral health needs. Visiting a dental professional for oral health care for any reason within the past 12 months is an indicator of access to care. For this reason, the RHS defined receiving dental care in the 12 months prior to the survey for any reason as an indicator of access to care, for children, youth, and adults. There was no significant change from RHS 2002/03 in the prevalence of receiving dental care in the past 12 months for youth. However, there was a difference in the prevalence between First Nations youth and their counterparts in the general Canadian population. Overall, three in four (75.9%) First Nations youth aged 12 to 17 reported receiving dental care in the year prior to the survey, while 84.5% of non-Aboriginal youth aged 12 to 19 received dental care in the year prior to the CHMS (Health Canada, 2010b). The prevalence of receiving some dental care in the previous 12 months was on par with the corresponding figure for Aboriginal youth living off-reserve (74.6%) as reported in the CHMS (Health Canada, 2010b). This same disparity based on ethnicity was found in the 2009 New Zealand Oral Health Survey (Ministry of Health, 2010). As with First Nations in Canada, all children and youth in New Zealand are eligible to receive free, publicly funded oral health care from birth until the day before they turn 18 years of age. Yet, among children and youth aged 2 to 17 years, *Māori* and Pacific Island children and youth were significantly less likely to have visited a dental professional in the past 12 months than non-*Māori* and non-Pacific Island children and youth, respectively (Ministry of Health, 2010).

The youth components of both RHS 2002/03 and RHS 2008/10 probed health determinants that could explain the disparity in access to dental care between First

Nations youth living in First Nations communities and youth in the general Canadian population. In this phase of the RHS, the highest percentages of youth indicating receipt of dental care in the year prior to the survey were obtained from those whose parents or guardians had more than a high school diploma, and those who had an appreciation of traditional culture and participated in community cultural events, regularly attended school and had never repeated a grade, had a good self-rated mental health and did not feel sad, blue, or depressed for two weeks or more in a row in the past 12 months, and reported “always” or “almost always” eating a nutritious, balanced diet and not smoking.

As anticipated, most of these same health determinants were found to be associated with the prevalence of pain or other dental problems experienced by First Nations youth in the month prior to the survey. Specifically, the strongest determinants of the prevalence of dental pain included a youth's ability to speak or understand a First Nations language; indicators related to formal school experience, such as not attending school, repeating a grade or having problems learning at school; poor self-rated general and mental health; having depression; being diabetic; being very dissatisfied with one's weight; drinking soft drinks and eating sweets several times per day; rarely eating a nutritious, balanced diet; and smoking. These associations were expected because according to the First Nations' view of health, oral health is interconnected with overall health and well-being and includes physical, mental, emotional, and spiritual aspects and a healthy connection with both the natural and the socio-cultural environments (Dumont, 2005). For example, children with poorer oral health status are more likely to experience dental pain and miss or perform poorly in school (Jackson, Vann, Kotch, Pahel, & Lee, 2011). While improved oral health will by no means alleviate all of the educational problems facing First Nations youth living in First Nations communities, improved oral and general health can enhance their learning experience. However, only when concerns over socio-economic conditions and other problems facing their communities are addressed will school attendance and performance among First Nations youth improve, which, in turn, is likely to lead to improvements in their general and oral health.

According to the findings of the 2007–09 CHMS, the prevalence of dental pain or toothache was higher among Aboriginal people living off-reserve than among the general Canadian population (Health Canada, 2010b). Similarly, experiencing dental pain appears to be high for indigenous young adults in Australia (Jamieson et al.,

2010b). Untreated dental decay is the most common cause of toothache, and dietary behaviours, such as regular consumption of soft drinks and sweets, were found to be strong risk indicators for dental caries among Australian Aboriginal young adults (Jamieson, Roberts-Thomson, & Sayers, 2010a). Likewise, drinking soft drinks and eating sweets several times per day and rarely eating a nutritious, balanced diet were indicative of dental problems and pain among First Nations youth living in First Nations communities in Canada, as reported in this RHS. Of note, nutritious food choices are not always available to First Nations people living in First Nations communities, given the high cost and limited variety of healthy foods in many remote or northern communities. Hence, public health actions directed toward increasing access to nutritious foods and improving food security in these communities would go a long way to reducing acute oral symptoms, such as dental pain, among First Nations youth.

In RHS 2008/10, adolescent females aged 15 to 17 years were 1.8 times as likely to have experienced toothache in the month prior to the survey as males aged 12 to 14 years. In the literature, it is common to find women and younger people reporting higher levels of dental pain and anxiety than men and older people (Liddell & Locker, 1997). We cannot say from this survey whether dental pain was caused by untreated caries. It could potentially be caused by traumatized or fractured teeth, as females aged 15 to 17 years were more likely to report dental injuries occurring in the 12 months prior to the survey than were younger males. What is known is that the prevalence of dental problems and pain among First Nations youth has increased from 19% in RHS 2002/03 to 21% in RHS 2008/10. Though a 3% increase may not seem startling, the figure of 21% is twice that recorded for youth aged 12 to 19 in the general Canadian population (Health Canada, 2010b).

Additionally, self-perceived dental treatment needs have also increased in relation to the previous RHS results, most notably for regular maintenance and restorative care. First Nations youth who said they needed dental treatment were asked to specify the kind of dental care they required. It should be noted that self-reported dental needs are subjective measures and may be influenced by other factors, including the interpretation of questions asked, awareness of dental health needs, and cultural perceptions of health and well-being. In spite of the limitations of self-reported data, First Nations youth appear to have greater dental needs than other adolescent Canadians, when findings from the RHS are compared with those of the 2007–09 CHMS. Roughly three in four

(77.7%) First Nations youth perceived a need for dental treatment, compared to one in four youth in the CHMS (Health Canada, 2010b). Some of the factors behind the high rate of dental needs among this age cohort of First Nations include administrative barriers that discourage dentists from participating in the Non-insured Health Benefits (NIHB) Program, limited access of communities to dental hygienists and therapists, and NIHB's restrictive eligibility criteria for orthodontic services (Lemchuk-Favel, 2010). For example, the NIHB Program covers only cases of severe and functionally handicapping malocclusion (crooked, crowded, or protruding teeth) and requires predetermination¹ prior to the initiation of treatment (Health Canada, 2010a). Despite a desire on the part of some First Nations parents or caregivers to obtain orthodontic care for their youth, the rates of rejection for orthodontic treatment remain high despite numerous appeals by clients for coverage (Lemchuk-Favel, 2010).

In RHS 2008/10, orthodontic needs were cited by 16.5% of female and 11.2% of male adolescents. However, these rates of self-perceived orthodontic needs may have been under-reported. Reports from earlier studies indicate a very high prevalence of severe malocclusion among First Nations youth at 40.8% and 45.7% among those aged 13 to 15 years in 1988, and at 33% and 28.0% among 12-year-olds in 1990–91 and 1996–97 (Department of Community Dentistry University of Toronto & National School of Dental Therapy, 1992; Harrison & Davis, 1996; Saskatchewan Indian Federated College, National School of Dental Therapy, 2000). More recently, the CHMS reported a prevalence of less-than-acceptable occlusion among Aboriginal people aged 12 to 19 years living off-reserve of 43.1%^E (95% CI [24.3, 64.2]) in 2007–09 (Health Canada, 2010b).

CONCLUSIONS

Findings from RHS 2008/10 reveal that while three-quarters (75.9%) of First Nations youth had dental care in the year prior to the survey, they still experienced more dental pain and reported significantly more treatment needs than youth in the general Canadian population. Furthermore, the need for maintenance and restorative treatment among First Nations youth showed dramatic increases compared to the previous survey phase in RHS 2002/03. The reasons for the elevated rates of dental treatment needs are thought to be fundamentally associated with the determinants of health explored in this chapter. These determinants

¹ Predetermination is a common administrative review used by most insurance programs to determine if the proposed dental services are covered under the program's criteria, guidelines, and policies.

include parental and youth education, language and traditional culture, personal and community wellness factors, health conditions, diet, and smoking. These data provide further evidence to support addressing the determinants of First Nations' health in order to improve the oral health status of their youth. Access to oral health prevention and treatment services for all First Nations, regardless of age, also must be increased to meet the pressing oral health care needs of this population.

Meeting the oral health care needs of First Nations youth living on-reserve and in northern communities will require a comprehensive approach to providing timely access to appropriate dental preventive and treatment services, with an optimum balance between preventive care and treatment. Approaches might involve the integration of oral health promotion, prevention, and treatment with other local health care services, the removal of administrative barriers to accessing NIHB coverage for dental and orthodontic care, and continuing efforts to tackle the ongoing problems of poverty and food security in First Nations communities across Canada.

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Chapter 26

Injury

EXECUTIVE SUMMARY

Injuries are a leading cause of death worldwide; more than five million people worldwide die as a result of injuries every year, making up 9% of global mortalities. Among youth in the general Canadian population and among First Nations youth, injuries are the leading cause of death and the second leading cause of potential years of life lost, after cancer. However, rates of mortality as a result of injury are much higher among First Nations youth; injuries are responsible for 26% of deaths of First Nations youth compared to 6% of deaths in the general Canadian population. The First Nations Regional Health Survey (RHS) 2008/10 asked First Nations youth aged 12 to 17 years living on-reserve or in northern communities about injuries they experienced in the 12 months prior to the survey. Approximately one-third (30.5%, 95% CI [28.5, 32.6]) reported that they had been injured. The most common types of injury occurred due to falling, accidental contact with another person or animal, or bike riding. The occurrence of injury was linked to greater rates of depression, suicide ideation, and suicide attempts, as well as to greater alcohol and drug use.

KEY FINDINGS

- In RHS 2008/10, 30.5% (95% CI [28.5, 32.6]) of all First Nations youth reported that they had been injured in the 12 months prior to the survey.
- The three most common types of injuries reported were minor cuts, scrapes, or bruises; major sprain or strain; and broken or fractured bones.
- Hands, ankles, and arms were named as the most common locations of injury.
- Injuries most often occurred in the home, at sports fields or facilities of school, and on the street, highway, or sidewalk.
- Falls, accidental contact with another person or animal, and bike riding were the causes of most injuries reported.
- For First Nations youth who received medical treatment for their injury, this treatment most often occurred at the hospital emergency room, at home, or at a doctor's office.
- Approximately one in 10 First Nations youth (10.9%, 95% CI [8.4, 14.0]) were under the influence of alcohol, and 4.5% (95% CI [3.5, 5.9]) were under the influence of marijuana when their injury occurred.
- Prevalence of injury were higher among youth who felt sad, blue, or depressed for two or more weeks in a row in the 12 months prior to RHS 2008/10, who had ever thought about committing suicide, or who had ever attempted suicide.

INTRODUCTION

Injuries may result from seemingly everyday events, such as contact with a hot liquid or strenuous movement, to more traumatic, tragic, or severe events, including motor vehicle collision, domestic or family violence, house fires, and self-inflicted injury or suicide.

Responsible for 9% of global mortality, injury is the leading cause of death worldwide; and for those fortunate enough to recover from their injuries, temporary or permanent disability may be a reality (World Health Organization, 2011).

No exception to the rule, injury is also the leading cause of death and the second leading cause of potential years of life lost, after cancer, among youth in the general Canadian population (Public Health Agency of Canada [PHAC], 2006). In 2005–06, Canadians aged 19 years or younger experienced almost 30,000 separate hospitalizations as a result of injury (PHAC, 2009). Additionally, in 2005, 720 Canadians aged 19 years or younger died as a result of their injuries (PHAC, 2009).

Injuries among Canadian youth occurred most often as a result of motor vehicle accidents, at a rate of more than six times that of any other type of injury, while secondary causes included drowning; fire or contact with a hot object or substance—for example, a house fire or being burned by a stove or hot liquid; suffocation; poisoning; and falls (PHAC, 2009).

Among youth aged 15 to 19 years, males suffered the highest rate of death as a result of unintentional injury—29.0 per 100,000 persons—by far the highest rate and well more than double the rate for females of the same age—12.6 per 100,000 persons (PHAC, 2009).

Mortality rates resulting from injury are much higher among First Nations people. Compared to only 6% among the general Canadian population, more than one-quarter (26%) of all deaths among First Nations people occurred due to injury (Health Canada, 2008). Of particular concern is the finding that approximately one-quarter of all deaths due to injury in the First Nations population are due to suicide, with the rate of suicide being three to four times higher than that in the general Canadian population (National Aboriginal Health Organization, 2006).

The purpose of the present chapter is to present the most recent data from RHS 2008/10 on youth injury among First Nations youth living in First Nations communities. Commonly cited predictors of injury, such as substance use, were also assessed.

METHODS

The RHS 2008/10 asked First Nations youth aged 12 to 17 years living in First Nations communities to report whether they had been injured in the 12 months prior to the survey. Additionally, a series of questions regarding the characteristics of their injuries was posed:

- What type of injury(ies) did you have?
- What part of your body was injured?
- Where did the injury(ies) occur?
- What were you doing when the injury(ies) occurred?
- What caused the injury(ies)?
- Where did you get medical treatment for your injury(ies)?
- When the injury(ies) happened, did alcohol, marijuana, or other substances have an influence on your injury?

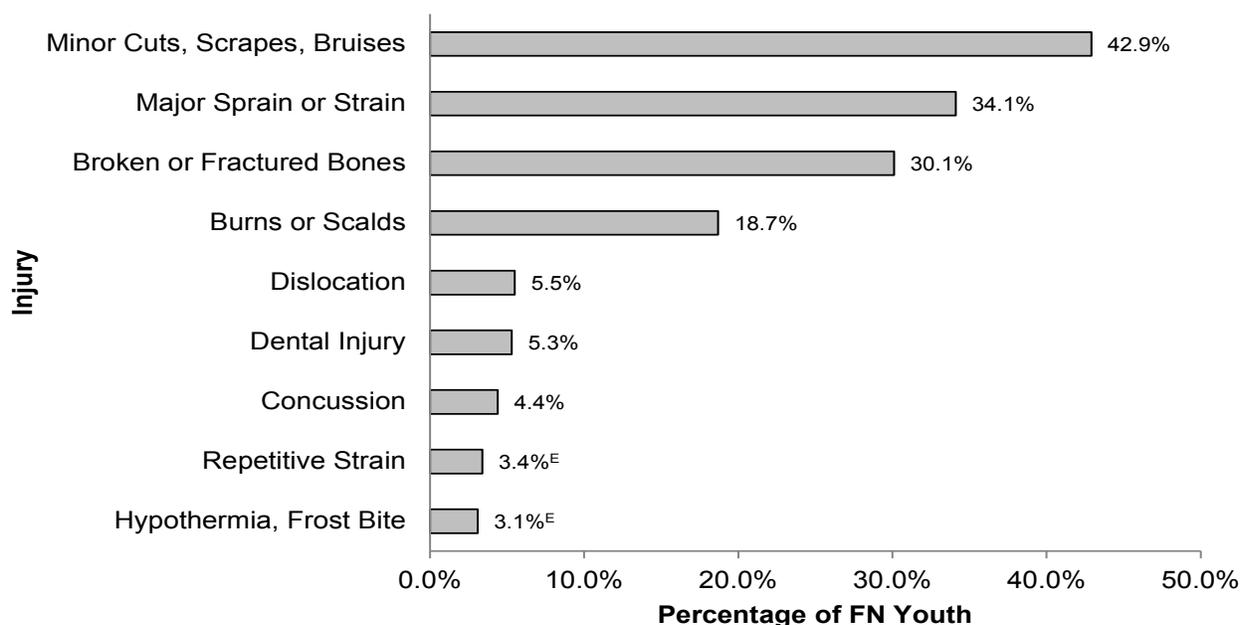
Potential links between injury prevalence and other variables included in RHS 2008/10 were also assessed, including degree of physical activity, experience of bullying, experience of depression, suicide ideation or attempted suicide, perceived emotional support, and alcohol and drug use.

RESULTS

In RHS 2008/10, 30.5% (95% CI [28.5, 32.6]) of First Nations youth reported that they had been injured in the 12 months prior to the survey. No difference was observed between male and female youth or between younger and older youth.

The three most common types of injuries reported were minor cuts, scrapes, or bruises; major sprains or strains; and broken or fractured bones (see Figure 26.1). The proportions of injuries reported did not vary by gender; however, older First Nations youth—those aged 15 to 17 years—were more likely than younger First Nations youth—those aged 12 to 14 years—to report experiencing major sprains or strains (40.6% vs. 26.6%) and dental injury (7.2% vs. 3.1%), 95% CIs [35.5, 45.9], [22.1, 31.6], [5.3, 9.8], and [1.9, 4.9], respectively.

Figure 26.1. Type of Injury (among youth who indicated being injured in past 12 months) (n = 1,349)



Note. "Poisoning" and "Injury to internal organ" categories suppressed due to high sampling variability.

^E High sampling variability. Use figure with caution.

Among youth who reported being injured, hands, ankles, and arms were the most common bodily locations for injury (see Table 26.1). No consistent gender or age differences in location of injury were observed.

Table 26.1. Body Part Injured (among youth who indicated being injured in past 12 months) (n = 1,349)

Body Part	Percentage	95% CI
Hand	31.4	[28.2, 34.9]
Ankle	31.1	[27.3, 35.1]
Arm	29.0	[25.3, 33.2]
Knee	26.4	[23.5, 29.6]
Leg	24.9	[21.3, 28.9]
Foot	22.3	[18.6, 26.5]
Wrist	21.1	[18.3, 24.2]
Head	13.2	[10.9, 15.9]
Torso	7.4	[5.6, 9.8]
Eye(s)	3.2 ^E	[2.1, 4.8]

^E High sampling variability. Use figure with caution.

With respect to where the injury occurred, youth were most likely to name their home, sports fields or facilities of school, and the street, highway, or sidewalk (see Table 26.2).

More First Nations female youth, compared to male youth reported that they were injured at home (43.5% vs. 31.0%, 95% CIs [37.9, 49.3] and [25.8, 36.7], respectively).

On the other hand, First Nations male youth were more likely than female youth to have been injured at sports fields or facilities of schools (37.8% vs. 26.7%, 95% CIs [32.8, 43.1] and [22.1, 31.9], respectively). No age differences were observed in place where injury occurred.

Table 26.2. Where the Injury Occurred (among youth who indicated being injured in past 12 months) (n = 1,349)

Location	Percentage	95% CI
Home	36.7	[32.5, 41.1]
Sports fields or facilities of school	32.8	[28.9, 36.9]
Street, highway, sidewalk	25.2	[21.5, 29.4]
School, college, university	24.3	[21.4, 27.5]
Countryside, forest, woodlot	9.5	[7.4, 12.0]
Community buildings (community centre, band office)	5.9	[4.6, 7.6]
Lake, river, ocean	5.0	[3.8, 6.4]
Industrial or construction area	F	
Office	F	

^F Suppressed due to extreme sampling variability or low cell count.

Among youth who had been injured, more than half (58.9%, 95% CI [55.2, 62.5]) reported that the injury occurred while participating in sports or physical exercise, and one-quarter (24.6%, 95% CI [21.5, 28.0]) reported that the injury occurred while participating

in a leisure activity or hobby. A minority of injuries occurred when completing unpaid work or chores around the house (8.7%), traveling to and from work or school (6.8%), or working at a job or business (4.2%), 95% CIs [6.9, 10.9], [5.5, 8.3], and [2.9, 5.9]^E, respectively.

The most common sources or causes of injury reported by First Nations youth were experiencing a fall, accidental contact with another person or animal, and riding a bike (see Table 26.3).

No real gender differences were observed, with the exception that First Nations males were more likely to report injury due to riding a bike than were First Nations females (20.7% vs. 8.8%, 95% CIs [16.6, 25.6] and [6.6, 11.7], respectively).

Age differences were observed in cause of injury: First Nations youth aged 15 to 17 years were more likely than those aged 12 to 14 years to suffer injury due to physical assault (10.3% vs. 3.1%, 95% CIs [7.5, 13.9] and [1.9, 4.9]) and contact with a machine or tool (4.9% vs. 1.6%, 95% CIs [3.5, 6.7] and [0.8, 3.3], respectively).

Table 26.3. Cause of Injury (among youth who indicated being injured in past 12 months) (n = 1,349)

Cause of injury	Percentage	95% CI
Fall	44.0	[39.5, 48.7]
Accidental contact with another person or animal	16.7	[14.0, 19.7]
Riding a bike	15.3	[12.6, 18.4]
Other physical assault	6.9	[5.2, 9.0]
Contact with hot liquid, object, etc.	6.0	[4.6, 7.8]
Smoke, fire, flames	4.8	[3.7, 6.2]
Overexertion or strenuous movement	4.6 ^E	[3.2, 6.5]
Motor vehicle collision	3.7 ^E	[2.6, 5.3]
ATV collision	3.3	[2.4, 4.6]
Contact with a machine, tool, etc.	3.3	[2.4, 4.6]
Suicide attempt or other self-inflicted injury	1.8 ^E	[1.1, 3.0]
Domestic or family violence	1.7 ^E	[1.0, 2.9]
Snowmobile collision	1.7 ^E	[1.1, 2.6]
Thin ice	1.3 ^E	[0.7, 2.3]
Hunting accident	F	
Boating accident	F	
Extreme weather or natural disaster (i.e., flood)	0.3 ^E	[0.1, 0.5]

^E High sampling variability. Use figure with caution.

^F Suppressed due to extreme sampling variability or low cell count.

Fewer than 20% (17.5%, 95% CI [14.7, 20.7]) of First Nations youth with an injury did not seek any medical treatment. When treatment was sought, the most common sources were at a hospital emergency room, at home, and at the doctor's office (see Table 26.4). No substantial gender differences were observed. With respect to age differences, more First Nations youth aged 12 to 14 years than youth aged 15 to 17 years reported receiving treatment at a doctor's office (22.2% vs. 12.0%, 95% CIs [15.4, 30.9] and [9.3, 15.3], respectively).

Table 26.4. Where Medical Treatment was Received (among youth who indicated being injured in past 12 months) (n= 1,348)

Location	Percentage	95% CI
Hospital emergency room	41.2	[37.0, 45.5]
At home	18.5	[15.7, 21.7]
Doctor's office	16.8	[13.0, 21.3]
Community health centre or nursing station	10.8	[9.0, 13.0]
Walk-in clinic	10.4	[8.5, 12.7]
At school	6.9	[5.4, 8.9]
Traditional healer	1.6 ^E	[0.9, 2.6]
At work	0.9 ^E	[0.5, 1.7]
By telephone	F	

^E High sampling variability. Interpret figure with caution.

^F Suppressed due to extreme sampling variability or low cell count.

Among First Nations youth who reported being injured, the majority (82.9%) reported that they were not under the influence of any licit or illicit substances. Few youth reported being under the influence of alcohol (10.9%), marijuana (4.5%), or other drugs (1.7%^E) when the injury occurred (95% CIs [79.5, 85.8], [8.4, 14.0], [3.5, 5.9], and [0.9, 3.2], respectively).

Physical Activity

No difference was observed in rates of injury among active and physically inactive youth (see Table 26.5).

Bullying

No association between injury and bullying was observed (see Table 26.5).

Depression

First Nations youth who reported feeling sad, blue, or depressed for two or more weeks in a row in the 12 months prior to the survey were more likely to report having been injured than were those who did not report this symptom of depression (41.7% vs. 26.0%; see Table 26.5).

Suicide Ideation and Attempts

First Nations youth who had thought about committing suicide were more likely to report having been injured in the 12 months prior to RHS 2008/10 than were those who did not report suicidal thoughts (37.4% vs. 26.0%; see Table 26.5). First Nations youth who reported that they had attempted suicide were more likely than those who had never attempted suicide to have been injured in the 12 months prior to the survey (39.7% vs. 29.5%; see Table 26.5).

Emotional Support

First Nations youth who felt they had emotional support all of the time, that is, someone they could count on to listen to when they needed to talk, were less likely to have experienced injury in the 12 months prior to the survey than were those who felt they had emotional support very rarely or never (29.6% vs. 36.2%; see Table 26.5).

Table 26.5. Potential Correlates of Injury

	Percentage	95% CI
Physical activity		
Active	33.0	[30.0, 36.1]
Inactive	29.7	[25.1, 34.8]
Bullying		
Currently being bullied	28.3	[23.2, 34.1]
Not currently being bullied	30.6	[28.4, 32.8]
Depression*		
Depressed	41.7	[36.9, 46.6]
Not depressed	26.0	[23.8, 28.3]
Suicide*		
Thought about suicide	37.4	[32.8, 42.3]
Had not thought about suicide	28.1	[26.0, 30.4]
Attempted suicide	39.7	[32.7, 47.1]
Had not attempted suicide	29.5	[27.4, 31.6]
Emotional support		
"All of the time"	29.6	[26.9, 32.4]
"Almost none of the time"	36.2	[28.6, 44.5]

*Statistically significant ($p < 0.05$)

Alcohol

More First Nations youth who consumed alcohol in the 12 months prior to RHS 2008/10 reported that they had been injured in an ATV accident (5.0% vs. 1.9%), by smoke, fire, or flames (6.5% vs. 2.6%), or during contact with a machine or tool (4.5% vs. 1.6%), than those who did not consume alcohol.

Marijuana Use

More First Nations youth who used marijuana in the 12 months prior to RHS 2008/10 reported that they had been injured from contact with a machine (5.2% vs. 2.1%), in a snowmobile accident (3.4% vs. 0.5%^E), or in a physical assault (13.8% vs. 2.1%^E), than those who did not use marijuana.

DISCUSSION

Injuries are a common occurrence among First Nations youth, most often due to a fall, accidental contact with another person or animal, or riding a bike. The findings of RHS 2008/10 revealed that, although common, most injuries experienced by First Nations youth are accidental—those that occur without any reasonable intent or premeditation.

Unintentional injuries make up the largest proportion of injuries that occur worldwide, representing almost two-thirds of the total number of deaths that occur due to injury (Norton, Hyder, Bishai, & Peden, 2006). These injuries, which include motor vehicle accidents, poisonings, falls, fires, and drowning, result in the greatest burden on the health care system. Perhaps most distressing is that although unintentional injuries occur at such a high frequency, they are entirely preventable.

First Nations are at particular risk of experiencing injury. For instance, exposure to a harsher physical climate, particularly in remote, northern communities, poor housing conditions, increased use of certain vehicles, such as snowmobiles and ATVs, and increased use of licit and illicit substances, including alcohol, all contribute to the heightened levels of unintentional injuries resulting in mortality within First Nations populations (Health Canada, 2005).

Although treatment of injury is one way of ameliorating harm, there is much need for prevention work to avoid injury. This type of preventive work requires data, as presented here, on the types of injuries, causes of injuries, and risk factors most commonly associated with injury. The findings of RHS 2008/10 shed some light on these factors, revealing that the most common types of injury were falls, accidental contact with another person or animal, and while riding a bike. With respect to risk factors, depression, suicide ideation, suicide attempts, and substance use appeared to increase the risk of injury.

Health Canada has undertaken various initiatives to promote injury prevention in First Nations communities. Information for First Nations people related to fall

prevention (Health Canada, 2007a), fire safety (Health Canada, 2007b), poison prevention (Health Canada, 2007c), road safety (Health Canada, 2007d), suffocation hazards (Health Canada, 2007e), and water safety (Health Canada, 2007f) are all available for public consumption. These initiatives attempt to identify the means by which First Nations can improve their personal safety when participating in various activities.

With respect to reducing risk factors for injury, reducing risky alcohol use has been one target of programming. The National Native Alcohol and Drug Abuse Program, which originated in the 1970s, now consists of over 550 prevention programs employing 700 workers, largely controlled by First Nations communities (Health Canada, 2006). By creating public awareness through campaigns, meetings, school programs, and other media events, the dangers that alcohol and drug use pose to First Nations, especially youth, are being spotlighted. As alcohol and drug abuse have been highlighted as being indirectly involved in a large proportion of injuries reported by First Nations youth, any means to reduce this problem is invaluable to the health and safety of First Nations youth.

In contrast to prevention work regarding accidental or unintentional injuries, some types of injuries require a more complicated response. For instance, the results of RHS 2008/10 demonstrate that First Nations youth who reported having been depressed or having thought about or attempted suicide are more likely to experience injury than are youth with greater emotional well-being. The nature of this link and how to reduce risk must be explored much further in future research.

CONCLUSIONS

Youth, in general, are more likely to engage in higher risk activities—many related to rites of passage: joining sports teams, learning to drive, and consuming licit and illicit substances, including alcohol and marijuana—rendering them particularly vulnerable to bodily harm. Injuries appear to be more common and result in greater rates of mortality among First Nations youth living in First Nations communities than among youth in the general Canadian population. This suggests that preventive factors, such as safety measures and knowledge, may be less present, and risk factors, such as risky substance use, may be more present among First Nations youth in First Nations communities. This chapter attempted to shed light on the nature of injuries among First Nations youth living on-reserve and in northern communities. Findings highlighted the need for greater intervention efforts to protect First Nations youth from harm.

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Chapter 27

Health Care Utilization and Preventive Care

EXECUTIVE SUMMARY

This chapter focuses on the utilization of Western health care and preventive health screening services, counselors, and mental health services, as well as traditional healers, by First Nations youth aged 12 to 17 years living on-reserve or in northern communities. Results from the First Nations Regional Health Survey (RHS) 2008/10 are compared to findings from the 2007–08 Canadian Community Health Survey (CCHS) for youth, the previous RHS 2002/03, and various other published studies. A number of important findings have emerged from this analysis. First, results suggest that utilization of physical examinations and health screening tests among First Nations youth fall short of Canadian guidelines. With regard to mental health services, it was found that well over half (56.7%) of First Nations youth who reported fair or poor mental health had never utilized counseling or mental health services, indicating a potentially high level of unmet needs. In addition, the proportion of First Nations youth who reported that they had ‘never’ consulted with a traditional healer slightly increased from 65.0% [95% CI: 62.0, 67.9] in RHS 2002/03 to 70.6% [95% CI: 68.0, 73.1]. The decline in the use of traditional healers is a concern given the importance of traditional healing practices within First Nations culture and spirituality. While the data presented here are important from a national perspective, a regional-level analysis is needed to aid in the development of more focused strategies to improve health care utilization and health care access for First Nations youth.

KEY FINDINGS

- 13.0% of First Nations youth reported never having visited a doctor or community health nurse. Prevalence was higher among male youth.
- 70.6% of First Nations youth reported never having consulted with a traditional healer, up from 65.0% in RHS 2002/03.
- More than half (56.7%) of all First Nations youth who reported fair or poor mental health had never received counseling or mental health services, suggesting a potentially high level of unmet needs.
- One-fifth (19.6%) of asthma sufferers who reported having an attack in the year prior to the survey did not obtain treatment.
- Approximately two-thirds (65.9%) of youth with diabetes said they were receiving treatment.
- A lower proportion of First Nations youth received health screening tests and preventive care than youth in the general Canadian population, and less than what is recommended by the College of Family Physicians of Canada and the Canadian Paediatric Society.
- There is a positive relationship between level of parents' education and frequency of physical examinations and health screening among First Nations youth.

INTRODUCTION

This chapter focuses on the utilization of Western health care and preventive health screening services, as well as traditional healers, by First Nations youth aged 12 to 17 years. Numerous studies have shown that there is a disproportionate disease burden among First Nations people, compared to the general Canadian population, for a wide range of conditions, including infectious diseases, diabetes, heart disease, renal diseases, and mental illness (Government of Canada, 1996; Health Canada, 2003; MacMillan, MacMillan, Offord, & Dingle, 1996; MacMillan et al., 2003; Webster, Weerasinghe, & Stevens, 2004; Young, Reading, Elias, & O’Neil, 2000). Primary care services can play an important role in reducing these health burdens through focusing on prevention, early intervention, and management. Many of the health problems that disproportionately affect First Nations people when they are older may be preventable if warning signs are caught when they are young. Traditional medicine—through the use of a holistic model of well-being that integrates physical, mental, emotional, and spiritual aspects—can also play an important role in the health of First Nations youth. Unfortunately, traditional medicine is almost always overlooked by the Western health care system (First Nations Health Society, 2010). Very little is known about the extent to which primary and preventive care services or traditional medicine are used among First Nations youth (Minore, Katt, & Hill, 2009).

A growing body of evidence indicates that First Nations adults do not utilize primary health care services at the same level as Canadians overall and that they face numerous barriers to accessing appropriate care. Diverty and Pérez (1998) found that Aboriginal people in the Northwest Territories had contact with a general practitioner at a rate almost half that of non-Aboriginal people, although rates of nurse consultations were higher. Newbold (1997), using data from the 1991 Aboriginal People’s Survey, found that First Nations people were significantly less likely to use physician services, compared to the general Canadian population. There are also a number of studies that have shown higher rates of hospitalizations among First Nations that could be preventable with better access to primary care services and improved disease management in the First Nations community (Pohar & Johnson, 2007; Shah, Gunraj, & Hux, 2003). However, improving primary care and other health care services for First Nations is a challenge due to the barriers to access many communities face. In RHS 2002/03 (First Nations Information Governance Committee [FNIGC], 2005), compared to the general

Canadian population, a significantly higher proportion of First Nations adults reported barriers to health care access due to problems with transportation, inadequate provision of local services, and a lack of culturally appropriate services. While it may be assumed that First Nations youth also underutilize primary care and are faced with many of the same barriers to access as adults, health care utilization in this population is not well understood.

The aim of this chapter is to advance our understanding of health care utilization among First Nations youth in an effort to inform more effective policy-making and program development, ultimately improving the health of First Nations. The following presents the results and discussion of Western primary health care service utilization and traditional healer consultation as reported by First Nations youth in RHS 2008/10, in addition to providing conclusions and recommendations.

METHODS

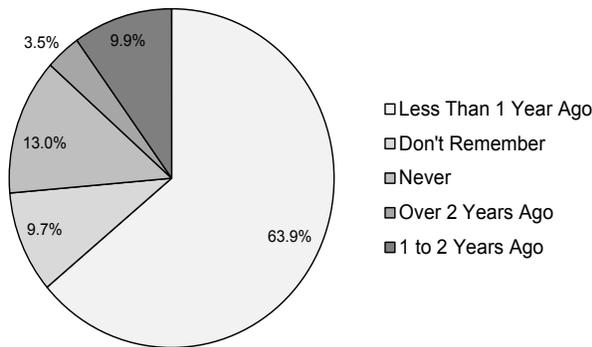
To better interpret the current results, comparisons were made to results from the 2007–08 CCHS for youth aged 12 to 17 (Statistics Canada, 2009), the RHS 2002/03, and various other published studies. In most cases, questions included in RHS 2008/10 and the CCHS were sufficiently similar to be able to make direct comparisons, unless otherwise noted. CCHS public use microdata files were obtained from Statistics Canada (2009) and RHS data were obtained from the previous RHS report (FNIGC, 2005).

RESULTS

Utilization of Primary Care Services

Figure 27.1 shows that 64% of First Nations youth visited a doctor or community health nurse in the 12 months prior to the survey, while 13% had never visited a doctor or community health nurse. By way of comparison, 65% of Canadian youth reported in the CCHS having consulted with a family doctor, pediatrician or general practitioner in the previous 12 months. Additionally, 15% of the general Canadian population reported having visited other medical doctors or specialists within the 12 months prior to the survey (Statistics Canada, 2009).

Figure 27.1. Time since Last Consultation with a Doctor or Community Health Nurse (n = 4,675)



Utilization of Primary Care Services, by Self-reported Health

Overall, First Nations youth reported somewhat lower levels of health compared to youth in the general Canadian population (Statistics Canada, 2009). The proportion of First Nations youth who reported excellent health (30.6%, 95% CI: 28.5, 32.8) was comparable to that of the general Canadian youth population (26%). Self-reported health has been found to be a good indicator of health generally and also of health-service use in some populations (Bosworth, Butterfield, Stechuchak, & Bastian, 2000; Miilunpalo, Vuori, Oja, Pasanen, & Urponen, 1997).

Utilization of Primary Care Services, by Gender

A gender gap was observed in the length of time since last consultation with a doctor or community health nurse (see Table 27.1). A higher proportion of female youth reported having consulted with a doctor or community health nurse in the 12 months prior to the survey (68.1%), compared to 59.8% of male youth. This gender difference is also observed among youth in the general Canadian population (68% of females, compared to 63% of males, Statistics Canada, 2009).

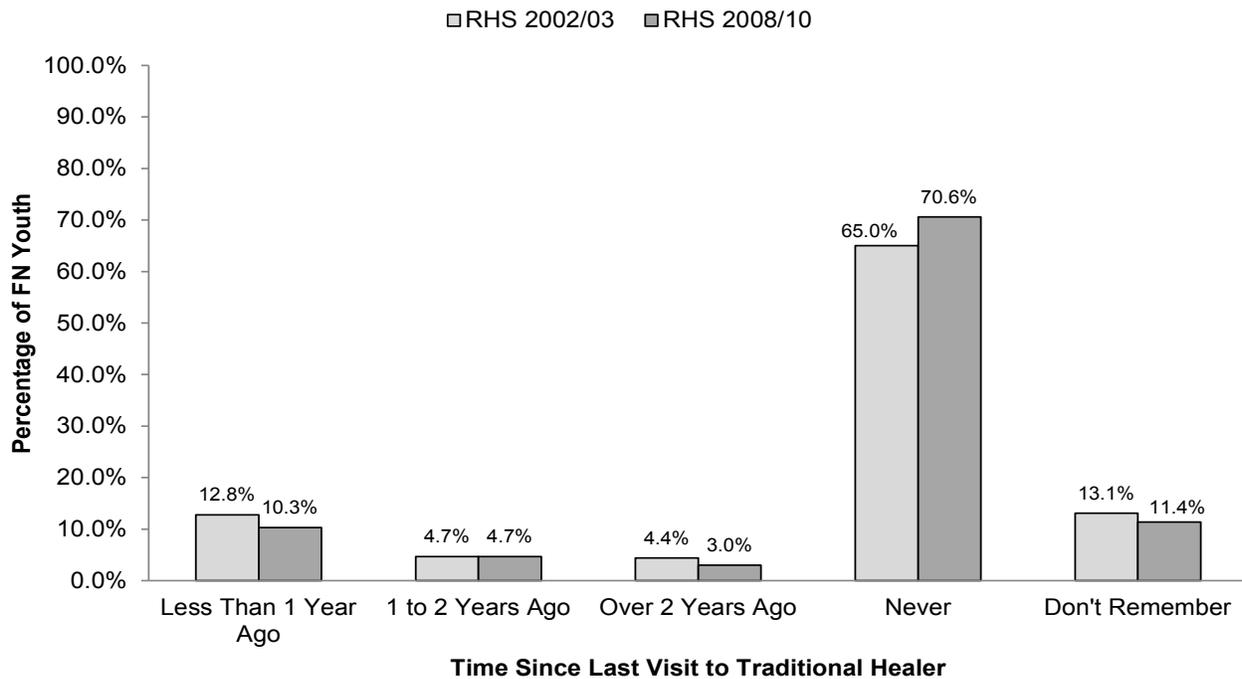
Table 27.1. Time since Last Consultation with a Doctor or Community Health Nurse, by Gender (n = 4,675)

Gender	<12 months (%)	1–2 years (%)	>2 years (%)	Never (%)	Don't remember (%)
Male	59.8	11.4	4.5	16.3	8.0
Female	68.1	8.3	2.5	9.5	11.6
Total	63.9	9.9	3.5	13.0	9.8

Utilization of Traditional Healers

Figure 27.2 compares findings from RHS 2002/03 and RHS 2008/10 regarding consultations with traditional healers. In RHS 2008/10, 10.3% (9.0, 11.7) of First Nations youth reported having consulted with a traditional healer in the year prior to the survey, similar to that observed in RHS 2002/03 (12.8%, 95% CI: 11.2, 14.7). However, the proportion of First Nations youth who reported ‘never’ having consulted with a traditional healer increased from 65.0% [95% CI: 62.0, 67.9] in RHS 2002/03 to 70.6% [95% CI: 68.0, 73.1]. Although traditional healing practices are an important part of First Nations’ cultural and spiritual beliefs and play an important role in First Nations’ health (First Nations Health Council, 2010), the results may suggest that the proportion of people engaging in these practices may be decreasing.

Figure 27.2. Time since Last Consultation with a Traditional Healer, RHS 2002/03 and RHS 2008/10 (n = 4,654)

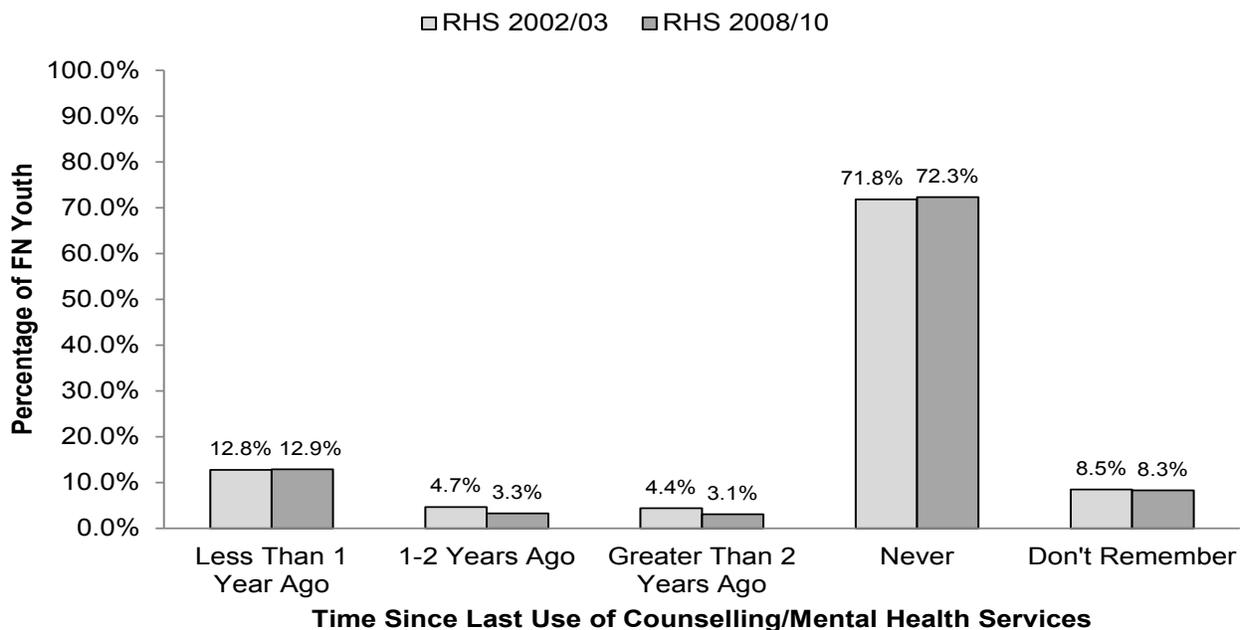


Utilization of Counseling and Mental Health Services

Only 12.9% of First Nations youth reported using counseling or mental health services within the year prior to the survey, while the majority (72.3%) reported

never having used these services (see Figure 27.3). When examined by gender, counseling and mental health service utilization rates were found to be very similar in both RHS 2002/03 and RHS 2008/10. Overall, there has been almost no change in utilization rates since RHS 2002/03

Figure 27.3. Time since Last Use of Counseling or Mental Health Services, RHS 2002/03 and RHS 2008/10 (n = 4,538)



When asked to rate their mental health, 30.1% of First Nations youth indicated their mental health is ‘excellent’, 34.7% indicated ‘very good’, 28.7% indicated ‘good’, and 6.5% indicated ‘fair’ or ‘poor’. By comparison, 4.9% of youth in the general Canadian population reported fair or poor mental health (Statistics Canada, 2009).

To assess the extent to which utilization of mental health services was associated with potential need, a comparison between utilization of counseling or mental health services and self-reported mental health status was made. Results revealed that a higher proportion of those who rated their mental health as being ‘fair’ to ‘poor’ indicated visiting a mental health professional in the past year (19.1%), compared to those with good (16.3%), very good (12.3%), or excellent (9.0%) self-reported mental health. The results reveal that, consistent with expectations, utilization of services increased as quality of self-reported mental health decreased. However, it is also important to note that 56.7% of those who reported fair or poor mental health had never utilized counseling or mental health services, indicating a potentially high level of unmet needs

Treatment for Diagnosed Health Conditions

The section discusses key health conditions and the extent to which First Nations youth were receiving medical treatment for them. Asthma, diabetes, and anemia focused on because they were either prevalent among Canadian youth overall or of particular concern among First Nations youth.

Asthma

In RHS 2008/10, 12.7% of First Nations youth reported having been diagnosed with asthma, and 57.5% of them were receiving treatment for their condition (see Table 27.2). Those findings are comparable to results from the 2001 Aboriginal People’s Survey for Aboriginal youth aged 10 to 15 living off-reserve (Crighton, Wilson, & Sénécal, 2010). Of the First Nations youth who reported having been diagnosed with asthma, 19.6% reported having had an asthma attack in the year prior to the survey. Of that 19.6%, the majority were receiving treatment (80.4%).

Diabetes

Fewer than 1% (0.8%, 95% CI: 0.6%, 1.2%) of First Nations youth reported a diabetes diagnosis (see Table 27.2). The prevalence of diabetes appears to be higher than that observed among youth in the general Canadian

population (0.35%; Statistics Canada, 2009). Only 65.9% of those who reported having diabetes said they were currently receiving treatment for diabetes. These findings are consistent with research findings among First Nations adults in Ontario (Shah, Anand, Zinman & Duong-Hua, 2003). Shah et al. (2003) identified high rates of diabetes-related mortality and hospitalizations, as well as reduced rates of specialist referral for diabetes diagnostic tests and related procedures, which is an indicator of inadequate management in the community.

Anemia

A small proportion (1.5%) of First Nations youth had been diagnosed with anemia (see Table 27.2). Of those, approximately two-thirds (70.9%) were receiving treatment.

Table 27.2. Health Conditions Diagnosed by a Health Care Professional and Receiving Treatment

Health condition	Diagnosed (%)	Receiving treatment (%)
Asthma (<i>n</i> = 4,627)	12.7	57.5
Attack in past year*	19.8	80.4
Diabetes (<i>n</i> = 4,616)	0.8	65.9
Anemia (<i>n</i> = 4,635)	1.5	70.9

*Individuals who reported an asthma diagnosis by a health care professional and who had an asthma attack in the 12 months prior to RHS 2008/10

Preventive Care

Table 27.3 demonstrates that approximately 18% of First Nations youth received complete physical examinations in the year prior to the survey. Approximately half (47.9%) of First Nations youth reported having had vision or eye exams in the previous 12 months, while fewer than one-third (30.2%) reported having had blood pressure tests. Comparatively, in the general Canadian youth population of the same age group, approximately 51% reported having had an eye examination and 67% reported having had a blood pressure test in the past year (Statistics Canada, 2009). Significantly more females than males reported having received blood pressure and vision tests. The RHS 2008/10 revealed that fewer than one-fifth (18.0%) of First Nations youth reported having had blood sugar tests in the year prior to the survey, with a higher proportion of females than males receiving the tests.

Table 27.3. Received Health Screening Tests within the 12 Months Prior to the Survey

Health screening Test	Male (%)	Female (%)	Overall (%)
Complete physical (n = 4,369)	18.2	17.9	18.1
Vision/eye exam (n = 4,585)	45.7	50.2	47.9
Blood pressure test (n = 4,543)	27.7	32.9	30.2
Blood sugar test (n = 4,490)	16.0	20.2	18.0
Cholesterol test (n = 4,117)	5.6	4.4	5.0

Table 27.4 demonstrates that when health screening is compared to the level of parents' education, rates of health screening increased as the level of parents' education increased. While this finding seems to suggest that better educated parents were more aware of the importance of preventive care, an alternative explanation may simply be that they lived in less remote areas with better access to health care services.

Table 27.4. Received Health Screening Tests in the 12 Months Prior to the Survey, by Level of Parents' Education

Health screening test	Highest level of schooling			
	Less than high school (%)	High school or equivalent (%)	Some post-secondary (%)	All (%)
Complete physical	13.9	17.1	24.1	18.1
Vision/eye exam	41.8	50.9	53.8	48.0
Blood pressure test	23.6	31.5	37.1	30.0
Blood sugar test	14.8	19.4	20.6	17.8
Cholesterol test	3.7	6.1	6.1	5.1

Human papilloma virus vaccination

Results from RHS 2008/10 indicate that at the time of the survey, 29.0% of First Nations female youth had been vaccinated for human papilloma virus (HPV). Studies have shown that HPV vaccine is highly effective in preventing disease from the HPV types that cause 70% of all cervical cancers and 90% of genital warts (National Advisory Committee on Immunization [NACI], 2007).

In 2007, NACI's recommendation that all females between 9 and 26 years of age be routinely vaccinated for HPV was adopted nationally. While the findings here suggest that this standard is not being met, RHS 2008/10 was conducted only shortly after the adoption of this recommendation. The next wave of the RHS will be able to provide a better indication of the success of the vaccination program among young First Nations females.

CONCLUSIONS

Findings from this study suggest that First Nations youth are not receiving adequate levels of primary prevention and screening. Canadian guidelines suggest physical examinations should occur every one or two years for children and youth. The exams should include, among other things, assessments of height and body mass index, blood pressure, nutrition, and visual acuity (Greig, Constantin, Carsley, Cummings, & Canadian Paediatric Society, 2010). It is further recommended that additional assessments be performed for high-risk populations for conditions such as diabetes. In the case of First Nations youth, where high rates of obesity and type 2 diabetes are increasingly a concern (Allan, Flett, & Dean, 2008; Gohdes et al., 2004; Hegele, Hanley, Zinman, Harris, & Anderson, 1999; Rosenbloom, Joe, Young, & Winter, 1999; Young et al., 2002), regular cholesterol and blood sugar testing is considered appropriate. An important starting point to address this may be to develop First Nations-specific screening and preventive standards to guide community-based activities. Findings further suggest that considerable efforts must be made to reduce barriers to access to primary and preventive care for First Nations youth. Such efforts should take a variety of forms, including improved access to telemedicine in remote communities and educational programs to encourage greater uptake of primary and preventive care.

The slight decline in the use of traditional healers is a concern, given the importance of traditional healing practices within First Nations culture and spirituality and their place in determining First Nations health and well-being (First Nations Health Council, 2010). Research to help understand why this decline is occurring is needed, as are programs to raise awareness and interest in traditional medicine among First Nations youth. Opportunities for integrating the Western health care model into traditional medicine also must be explored. Youth counseling and mental health services would be an appropriate

starting point for examining this type of integration.

While the data presented here are important from a national perspective, a regional perspective is required to better understand health care access and utilization among First Nations youth living on-reserve or in northern communities. As is the case for the general population in Canada, access to and utilization of primary care and preventive medicine varies geographically, typically with lower levels of utilization in more remote, rural, and northern areas. Results presented here are aggregated geographically; therefore, regional differences cannot be identified. A geographic-level analysis of RHS 2008/10, which will be carried out by the respective regions, will play an important part in understanding regional differences. Better health information systems must be developed through agreements between First Nations and the provinces, recognizing First Nations principles of ownership, control, access, and possession. There is a significant deficit of information about the health and health service utilization of First Nations people, making planning and provision of culturally appropriate services very difficult. While several provinces have developed a variety of information systems, most have not (Minore et al., 2009).

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Chapter 28

Community Wellness

EXECUTIVE SUMMARY

First Nations youth represent a driving force in First Nations communities, as over half of the First Nations population in Canada is under the age of 25, and this proportion is increasing. First Nations youth are active participants in determining and shaping the future of their communities. Their well-being and the well-being of the communities in which they live are essential to explore. Composite measures from the Community Well-Being (CWB) Index indicate a large disparity between First Nations communities and the rest of Canada. Culture, language, and traditional activities have all been identified as important tools for the prevention of high-risk behaviours among First Nations youth. Culture and pride in one's heritage are thus central to well-being. The findings of the First Nations Regional Health Survey (RHS) 2008/10 supported the importance of culture, as many First Nations youth living on-reserve or in northern communities (40.2%) identified traditional ceremonial activities as a community strength. An overwhelming 74.2% of First Nations youth reported that the biggest challenge to their communities was alcohol and drug abuse, followed by housing (46.2%), culture (42.6%) and employment/number of jobs (41.1%). The majority of First Nations youth identified parents and grandparents as their primary teachers of culture, followed by immediate family, schoolteachers and elders. From this data and relevant literature, it is evident that strategies aimed at improving community wellness for First Nations youth must be tied to First Nations identity, self-esteem, and cultural continuity and that they must emphasize family and social cohesion within First Nations communities. Findings for this chapter highlight an underlying theme of achieving community wellness by addressing historical trauma and the mental health needs of First Nations communities.

KEY FINDINGS

- The main challenge to community wellness reported by First Nations youth was drug and alcohol abuse (74.7%). Among those that recognized this as a challenge, over one-third (36.7%) reported that drug and substance abuse in the community is worsening.
- Almost half (42.6%) of all First Nations youth reported loss of culture as a community challenge. Among those that recognized this as a challenge, fewer than one-in-ten (6.8%) reported that good progress is being made in the area of culture loss.
- Over half of all First Nations youth (58.1%) identified family values as a community strength.
- Nearly half of all First Nations youth (40.2%) identified traditional ceremonial activities as a community strength.
- Only 29.5% of all First Nations youth reported use of First Nation language as a community strength.
- More than half (53.7%) of all First Nations youth reported learning culture from their grandparents.
- Among First Nations youth who identified gang activity as an issue, almost half (46.1%) reported that gang activity in communities was worsening, with another 35% reporting that there had been no improvement in this area.

When the shocks follow one another without intervals for recovery, pain and dysfunction are laid down layer upon layer and the original causes and effects become obscured.

—Castellano-Brant, 2008

INTRODUCTION

This chapter focuses on determinants of community wellness for First Nations youth living in First Nations communities. Determinants of community wellness are explored through the responses of First Nations youth to indicators of First Nations community wellness and community challenge. First Nations youth are a vital component of their communities, given that more than half of the First Nations population in Canada is under the age of 25 (Townsend & Wernick, 2008). As First Nations youth represent such a large and growing proportion of the First Nations population, it is essential that their needs and the needs of their communities in terms of health and well-being are met.

Culture as a Protective Factor

Chandler, Lalonde, Sokol, and Hallett (2003) assert that some commitment to one's own future prospects requires resilience fuelled by cultural sustainability. They state:

Without some sense of personal (not to mention cultural) continuity, it would appear, life is easily cheapened, and the possibility of suicide becomes a live option. Even under the best of developmental circumstances, finding a way of warranting one's necessary convictions about self- and cultural continuity is no simple matter, and much of childhood and adolescence appears to be taken up with drafting and re-drafting various perduring forms of self-understanding sufficient to withstand the expectable ravages of time. . . . young people who falter or fail in meeting such expectable developmental obligations often behave irresponsibly, and are known to demonstrate a lack of appropriate care and concern for their own future wellbeing.

Self-abuse and self-injuries, including suicide, have recently come to be counted among the common costs of such failures in identity development. However hazardous simply growing up may otherwise be, such risks are magnified when the cultural backdrop against which development automatically unfolds is complicated by socio-cultural adversities. Nowhere is this more apparent than in the identity struggles of young Aboriginal persons who are required not only to clear the standard hurdles of normal growth and development, but also are often forced to construct a sense of selfhood out

of the remnants of a way of life that has been largely threatened. In their five-year study of suicide among First Nations youth in British Columbia, Chandler and Lalonde (1998) identified six markers of cultural continuity: achieving a measure of self-government; securing Aboriginal title to traditional lands; achieving a measure of local control over health, education, and policing services, which constitute three markers; and creating community facilities for the preservation of culture. Lalonde et al. (2003) extended this work and identified two additional markers of cultural continuity: an achieved measure of local control over child welfare services, and female leadership. Other studies also cite language as a key protective factor (Norris, 1998). However, from 1986 to 2001, the percentage of Aboriginal children from birth to four years of age who spoke an Aboriginal language fluently declined from 10.7% to 7.9% (Norris, 2007). The implication of these statistics is significant given that “the younger the speakers, the healthier the language” (Norris, 2007)

Research has demonstrated that Aboriginal identity, language, and culture are protective factors for community wellness. The wellness of a community should then be measured from within a cultural knowledge framework. The Four Directions cultural framework provides a culturally based approach to the understanding of First Nations health and well-being. Within the Four Directions model, it is essential that the total health of the individual be promoted through the mind, body, spirit, and heart, while also contextualizing the individual within the environment of the family and community. Family and community, in turn, provide balance and support for stability, health, and well-being. The RHS Cultural Framework includes four directions—reason, relationships, action, and ways of seeing (First Nations Information Governance Committee, 2005)—and maintains a holistic world view that is inclusive of facts that are relevant to well-being and often overlooked by Western lenses.

Measuring community wellness within a cultural framework

The question then is how to measure community wellness within a First Nations framework that is holistic and encompasses the mind, body, spirit, and heart of community. Some attempts have been made to measure community wellness, although not often within a First Nations cultural framework. The Indian and Northern Affairs Canada (INAC) Community Well-Being Index is based on Western health indicators but was developed specifically with First Nations communities in mind.

The CWB Index incorporates elements of the Human Development Index and census data. The four dimensions of the CWB Index are education, labour force participation, income, and housing (McHardy & O’Sullivan, 2004). When the CWB Index was applied to all Canadian communities with 65 or more residents, including First Nations communities, the results suggested a significant disparity between First Nations communities and the rest of Canada. In fact, only one First Nations community in Canada ranked in the top 100 communities, while 92 of the bottom 100 communities were First Nations communities (McHardy & O’Sullivan, 2004). These findings are distressing, but they also allude to a potential challenge in adapting Western measures of community well-being to a First Nations cultural framework.

According to Kishk Anaquot Health Research:

Successful communities cultivate social climates where individual members thrive, develop a sense of self-efficacy and are able to actualize their potential spiritually, emotionally, physically and intellectually. Environments that support human potential honour their Elders and have employment, business, youth mentoring and early learning opportunities. A critical mass of individuals who are physically healthy, excel in cultural teachings or academic endeavours were also considered benchmarks of success . . . First Nation success is also obvious when collaboration and cohesion . . . A strong sense of community identity and pride was also commonly cited as a characteristic of successful community. Widespread understanding of cultural history and a sense of empowerment reflected such pride and identity. (2007)

Critical components of a successful community should therefore be measured not simply with mainstream health indicators but also through relationships, leadership, and identity. While there is little data on youth’s responses to these more culturally representative factors, several authors have examined the importance of community among First Nations peoples (Chandler & Lalonde, 1998; Chandler et al., 2003). The authors report that summary statistics, while technically correct, must be understood as “actuarial fictions” that regularly hide more than they reveal. Indiscriminately painting the whole of Canada’s First Nations population with the same broad brush not only obscures the real cultural diversity that marks the lives of Aboriginal peoples, but also mistakenly substitutes the banner headline of “Aboriginality” (Chandler & Lalonde, 1998; Chandler et al., 2003).

The Historical Context

The first order of self-determination is the task of revealing First Nations’ experience, one that has long been appropriated by official colonial accounts of history that have systematically written the First Nations out. The residential school era, ending in the 1970s, left generations of First Nations people without their language or cultural life skills and created a chasm between culture and education. Colonial practices outlawing or criminalizing culture and spiritual practices left wounds in First Nations communities, subsequently alienating people from their own heritage (Milloy, 1999). Exacerbating the colonial legacy is alienation and marginalization of indigenous people within their own countries, a practice that has led to damaging consequences for cultural traditions and identity, social cohesion, and self-esteem (Voyle & Simmons, 1999). There is no doubt that colonialism has had direct and indirect impacts on First Nations peoples’ collective health and well-being (Voyle & Simmons, 1999), and this must be considered when examining the current situation of First Nations communities.

METHODS

The RHS 2008/10 measures community wellness through the eyes of First Nations youth. Community wellness is explored in a holistic fashion in that First Nations youth were asked about the strengths and challenges in their communities in relation to cultural identity, language, leadership, and relationships. The data provide an overview of what First Nations youth view as barriers, followed by a community progress index. Resilience is measured through items exploring community strengths, as well as questions asking who helps First Nations youth understand their culture and how community wellness is tied to overcoming colonialism and sustaining cultural continuity. The cultural framework, from introduction to final analysis, is used to provide a First Nations view of community wellness and includes narratives that assess how to achieve wellness. The framework reveals both trends of resilience and current challenges.

The discussion that follows contextualizes the data and examines the critical indicators for community wellness within a cultural continuity framework. The discussion provides explanations for readers to understand the statistics within a cultural model and lends insights into why family, culture, and language are indicators of community wellness that are as important as employment, education, and housing. The holistic model embedded throughout the chapter is critical to an indigenous knowledge paradigm that incorporates history, the impacts of colonialism,

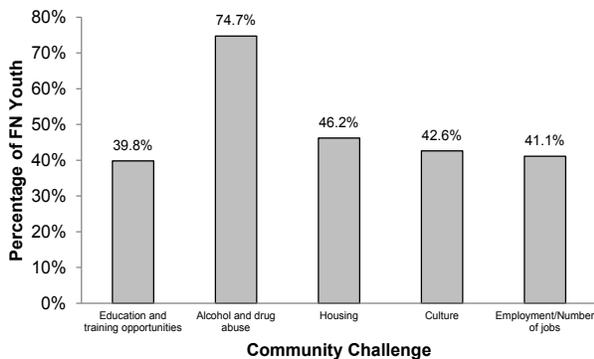
and why identity, emotional wellness, and spirituality are significant indicators in First Nations well-being.

RESULTS

Community Challenges

First Nations youth were asked about the main challenges they felt their communities were currently facing. They were able to select from a list of challenges that included lack of education and training opportunities, alcohol and drug abuse, housing, loss of culture, lack of employment, destruction of natural environment and resources, poor health, lack of funding, lack of control, and gang activity. The youth were also given the space to identify other challenges. Figure 28.1 illustrates the main community challenges reported by First Nations youth. Three-quarters (74.7%) of First Nations youth reported alcohol and drug use as one of the main challenges faced by their community. Housing (46.2%), loss of culture (42.6%), lack of employment (41.1%), and education and training (39.8%) were some of the challenges most often reported by First Nations youth.

Figure 28.1. Main Challenges Facing Communities, as Reported by First Nations Youth



Community Progress or Change

First Nations youth who identified community challenges were then asked whether they felt there had been an improvement in any of these areas within the 12 months prior to the survey (see Table 28.1). First Nations youth were able to identify the change on a scale that included “good progress or change”, “some progress or change”, “no progress/change” or “worsening.” Only a fraction (20.6%) of First Nations youth who observed community challenges reported that there was improvement with respect to drug abuse, while the majority (79.4%) viewed the drug abuse problem as achieving no progress or worsening in their communities. The pattern was similar with housing and employment, as the majority of First

Nations youth did not see an improvement in either employment (68.4%) or housing (63.4%). The most positive outlook of First Nations youth was improvement in their education and training opportunities with 40.7% and 40.0% reporting seeing progress, respectively.

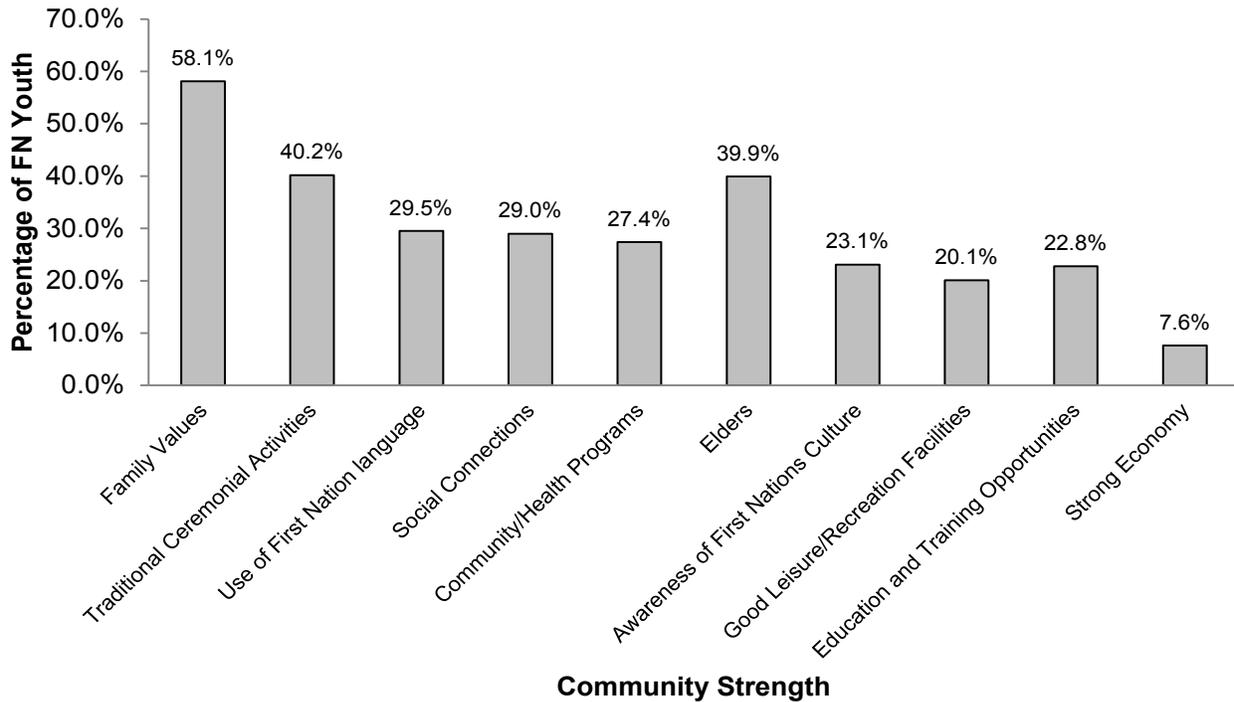
Table 28.1. Progress on Community Challenges, as Reported by First Nations Youth (among those who identified this as a challenge to the community)

	Good progress %	Some progress %	No Progress %	Situation worsening %
Education and training opportunities	5.1	35.6	46.4	12.9
Alcohol and drug abuse	3.9	16.7	42.7	36.7
Housing quality	5.2	31.4	40.6	22.8
Loss of culture	6.8	33.2	38.3	21.7
Lack of employment/jobs	2.5	29.0	48.0	20.4
Destruction of natural environment	4.4	19.4	44.6	31.6
Poor health	4.4	26.6	46.0	23.0

Community Strengths

When First Nations youth were asked about the main strengths of their community, 58.1% reported family values (see Figure 28.2). Traditional ceremonial activities and elders were also among the most frequently cited community strengths, at 40.2% and 39.9%, respectively. When asked about social connections and their community working cohesively, just below 30% of all First Nations youth reported affirmatively.

Figure 28.2. Community Strengths, as Identified by First Nations Youth



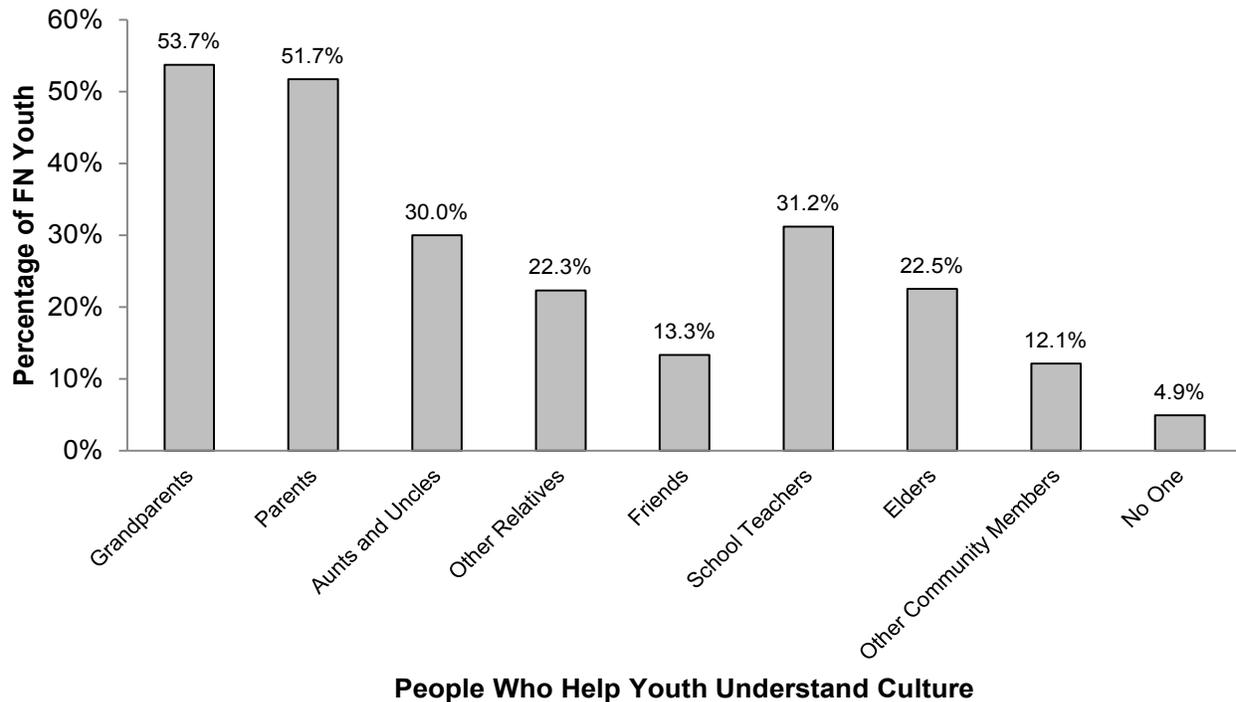
Only 14.0% of First Nations youth reported low rates of suicide, crime, and drug abuse to be community strengths. Additionally, the findings seemed to demonstrate a lack of leisure and recreation activities for First Nations communities; only 20.1% of First Nations youth reported good leisure/recreation facilities was a community strength. Even fewer First Nations youth (7.6%) reported a strong economy as a community strength.

Support for Culture

First Nations youth seem to feel strongly about the importance of traditional cultural events. Among female First Nations youth, 46.9% reported that traditional cultural events were “very important” and 38.9% reported that they were “somewhat important.” Approximately one-in-seven (14.3%) First Nations youth felt traditional cultural events were “not very important” or “not important at all”. Male First Nations youth did not differ much from their female counterparts, as 44.1% and 41.5% of male youth felt that traditional cultural events were “very important” or “somewhat important,” respectively. Participation in cultural events was high: 74.2% of First Nations youth reported that they “always/almost always” or “sometimes” took part in their local community’s cultural events.

When asked who helped them to understand culture, 53.7% of First Nations youth said grandparents and 51.7% said parents, followed by teachers (31.2%), aunts and uncles (30%), elders (22.5%), and community members (12.1%). See Figure 28.3.

Figure 28.3. People who Helped First Nations Youth Understand Their Culture



As language is a significant measure of culture, the findings of RHS 2008/10 on use of a First Nations language suggest that the cultural situation of First Nations communities has improved only minimally: only 21.5% of First Nations youth reported using their First Nations language as their daily language, while the vast majority (78.5%) reported that they did not. This finding is concerning, as research, though limited, has established a significant link between language and community well-being (McIvor, Napoleon, & Dickie, 2009).

DISCUSSION

The cultural framework utilized by the RHS includes action as one of the principles. Action, as a principle, maintains a focus on addressing previously identified barriers and nurturing First Nations as individuals. First Nations youth have clearly reported that they see little action taking place within their communities to improve community wellness. On measures of progress or change in all aspects explored, most First Nations youth did not report seeing any good progress or change in their community within the 12 months prior to the survey. In fact, many First Nations youth reported that the situation in their communities is worsening. These data demonstrate that First Nations youth are very much aware of the challenges facing their communities, but clearly feel that not enough is being done to address them.

Models and practices of helping and healing for First Nations people include storytelling, advice from elders, interconnectedness with family and community, hosting healing circles, and nurturing access to ceremonial practices (McIvor et al., 2009). These methods and practices for helping and healing serve as community strengths, and this is evident in findings (McIvor et al., 2009). A number of studies indicate that traditional activities are protective factors against certain ailments like alcoholism, depression, stress, and suicide (McIvor et al., 2009). The First Nations youth in the current research also recognize ceremonies and elders as strong community strengths; as a result, researchers and policy and program developers should draw on these findings to support community wellness programming, particularly those for First Nations youth. First Nations youth also identified the strength of social connections and family values for community wellness. The foundation of community is comprised of kinship systems and their relation to the wider community in terms of working together to address collective health needs (Duran & Duran, 1995).

The data demonstrate that First Nations youth feel strongly about the importance of culture. Many First Nations youth reported that loss of culture is a main challenge for their community. Additionally, the use of First Nations languages was identified as a community strength. Norris (1998) explains that the more one understands one's own

language and the teachings associated with that language, the more access one has to core traditional knowledge that can help to develop a stronger sense of identity. If this is true, then it can also be argued that the further one is separated from one's language, the more disconnected one may be from the core traditional knowledge needed to develop a stronger sense of identity. Research by the United Nations expert panel on language supports placing language as a key social determinant of health for First Nations communities, as language is more of an indicator of health and well-being than socio-economic status. In RHS 2008/10, almost 30% of First Nations youth identified use of a First Nations language as a community strength. This finding is consistent with literature suggesting that First Nations language is not only a community strength but also a protective factor for individual and community wellness. It is clear that First Nations language and culture are linked to community wellness; the challenge now is finding data that reflect how language and culture act as protective factors.

If First Nations children see themselves only through Eurocentric representations, they will not likely see encouraging representations of the self. Programs that utilize indigenous knowledge and cultural activities have shown promise but have not yet officially been designated best or promising practices. A number of First Nations substance abuse prevention models now incorporate traditional cultural activities in healing approaches. Spiritually oriented practices, such as purification lodges, smudging, talking circles, dream work, and traditional ceremonies have been shown to help First Nations youth facilitate healing (Anderson & Ledogar, 2008).

The role of cultural traditions is thought to be very strong. In fact, pride in one's heritage is considered central to well-being (Anderson & Ledogar, 2008; Norris, 2007). Anderson and Ledogar stated there is no way to identify the various forms of spirituality, but spirituality is also identified as very important in community wellness (Anderson & Ledogar, 2008; Norris, 2007). People who participate in traditional activity are less likely to feel powerless or out of control. Aboriginal people have always understood that spiritual teaching and the power of stories can help members of a community, particularly children and youth, to attribute meaning to historical trauma and to anticipate a more positive future (Anderson & Ledogar, 2008; Norris, 2007). These strategies must be recognized and employed in contemporary wellness strategies to improve success in First Nations communities and populations. First Nations youth need active avenues to recover from historical trauma, and traditional activities have been shown to support this. They are

facing the collective recovery of intergenerational trauma and require substantial support from the agencies that historically stripped their parents and grandparents of pride, self-esteem, and vision. The literature underlines the significance of traditions and culture as an indicator of overall well-being. Culture is but one component of a holistic analysis of community wellness and interconnects with socio-economic status, leadership, education, and other variables that measure wellness.

CONCLUSIONS

The root cause of the crisis in many First Nations communities is driven by collective impaired grief that results from massive cumulative trauma associated with colonization (Brave Heart, 1998). To support healing, this collective trauma should be acknowledged and, in response, tools from cultural teachings and ceremonies could be created. Recent research has suggested that the trauma experienced by First Nations peoples in history is not so historical. Research in the United States of America by Whiteback et al. (2002) suggests that the historical trauma is not over for many American Indian people. It continues to affect their perceptions on a daily basis and impinges on their psychological and physical health (Whitbeck, McMorris, Hoyt, Stubben, & LaFromboise, 2002). Assimilation policies that stripped Aboriginal people of their language and identity and encouraged assimilation were oppressive and had traumatizing impacts on generations of survivors. The loss of self-esteem occurred during an era of governmental policies of oppression such as residential schools, and poverty was a direct consequence of oppressing Aboriginal culture.

The findings of RHS 2008/10 demonstrate that First Nations youth living in First Nations communities feel strongly about the importance of culture, although many youth reported that loss of culture is also a main challenge for their community. Despite being an important challenge, the loss of culture, was also the item reported to have the most "good progress or change" in First Nations communities. Furthermore, the strengths revealed in the data show the commitment of First Nations youth to sustaining their culture and improving their communities' employment, education, and overall wellness. Their identification of culture, language, and family values as strengths of their communities demonstrates their understanding of how family wellness is essential for community wellness and success. Their responses also demonstrate that they have clear goals and aspirations consistent with their values and the principles embedded in the value of one's heritage.

The acknowledgement by First Nations youth of culture as a strength is promising as the literature indicates that culture is considered central to well-being (Norris, 2007). Based on the data and literature reviewed, it is clear that culture and language are important for addressing community challenges and improving community well-being. Best practices for First Nations community healing could utilize traditional customs and First Nations healing practices, along with other appropriate healing approaches.

Strategies that utilize and promote First Nations culture, language, and ceremony must be recognized and employed in contemporary wellness strategies to improve wellness in First Nations populations, in particular among youth. First Nations youth need active avenues to recover from historical trauma, and traditional activities have been shown to support this. Within a context of cultural continuity, the younger generation needs to be well positioned with respect to the primary indicators of community wellness—continuation of language, self-determination, and controlling their own education, policing, housing, and health services. The wellness of First Nations communities is measured by how well the youth—the future of the people—are and by their views of future prospects. First Nations youth have said substance abuse, suicide, poverty, and lack of jobs and training all impede their vision for achieving community wellness.

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Chapter 29

Personal Wellness and After-School Activities

EXECUTIVE SUMMARY

Youth in the First Nations Regional Health Survey (RHS) 2008/10 generally reported feeling balanced physically, mentally, emotionally, and spiritually, and the majority of them did not report persistent depressed mood, suicidal thoughts, or suicide attempts. However, likely due to greater exposure to acute and chronic stressors, percentages of depressed mood, suicide ideation, and suicide attempts were higher among First Nations youth living on-reserve or in northern communities than among the general Canadian population. Despite evidence of distress, generally high levels of self-esteem, mastery, and social support were also reported, all of which were associated with a range of positive outcomes. Considering that adolescence is a time where prevention and intervention efforts may be most effective, undertaking the development of comprehensive strategies aimed at improving wellness among First Nations youth is critical. The current data suggest that participation in cultural and general extracurricular activities were associated with positive outcomes for First Nations youth. However, other important determinants of wellness must be further explored, and, more importantly, underlying contextual and social factors also must be addressed.

KEY FINDINGS

- The majority of First Nations youth reported feeling balanced physically (75.0%), emotionally (65.3%), mentally (65.6%), and spiritually (60.8%) at least most of the time.
- Approximately one-third (33.8%) of female and just under one-fifth (17.2%) of male First Nations youth reported that there was a time when they felt sad, blue, or depressed for two weeks or more in a row in the previous 12 months.
- The large majority of First Nations youth have not considered suicide (83.5%) nor attempted suicide in their lifetime (94.1%). Rates of suicide ideation are much higher than those observed in the general population.
- A minority of First Nations youth reported that they were currently being bullied (11.7%).
 - A higher proportion of First Nations youth who were currently being bullied reported experiencing depressed mood (44.2% vs. 22.7%) and feeling lonely (quite a bit to a lot) (14.6% vs. 6.5%), compared to First Nations youth who were not currently being bullied.
- Self-esteem, self-mastery, and social support were generally high among First Nations youth.
- Outside of school ours, participation in sports teams was the most common activity among First Nations youth, followed by working a part-time job.
- First Nations youth who participated in cultural or extracurricular activities on a regular basis demonstrated increased levels of personal resource variables, such as self-esteem, social support, and mastery, and reported feeling balanced more often than First Nations youth who did not participate in such activities.

INTRODUCTION

Adolescence is generally regarded as an important formative period of rapid development in which changes occur in body, mind, heart, and spirit. Marked physical changes occur that are paralleled by psychosocial changes, including increased autonomy from parents, more salient relations with peers, changes and stabilization of personality traits, and formation of personal and collective identities (Costa & McCrae, 1994; Meeus, Iedema, Helsen, & Vollebergh, 1999; Vollebergh, Iedema, & Raaijmakers, 2001). Adolescence is also a time of profound neural growth. Certain abilities associated with higher order brain regions, such as learning, socialization, and self-regulatory processes, are still developing (Casey, Getz, & Galvan, 2008; Steinberg, 2008). In addition to the typical challenges faced by most youth, adolescence among First Nations youth is accompanied by additional stressors and risk factors, such as discrimination (Whitbeck, Hoyt, McMorris, Chen, & Stubben, 2001), feelings of identity confusion and discontinuity (Chandler & Lalonde, 1998), economic deprivation, social segregation (Kirmayer et al., 2007), and vulnerability associated with trauma endured by previous generations (Bombay, Matheson, & Anisman, 2009).

Although major gains in neurobiological and cognitive functions take place in adolescence, it is also a period of vulnerability marked by the increased prevalence of psychological disorders, such as depression (Spear, 2000; Vollebergh et al., 2001). The RHS 2002/03 reported that 44.3% of older First Nations female youth and 22.1% of older First Nations male youth—those aged 15 to 17 years—reported feeling sad, blue, or depressed for at least two successive weeks during the 12 months prior to the survey (First Nations Information Governance Committee [FNIGC], 2005). These are key symptoms of a major depressive episode based on the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 1994). Adolescent depression is particularly disconcerting because of high rates of relapse associated with the early onset of mood disorders (Hammen, Brennan, Keenan-Miller, & Herr, 2008) and due to its relationship with various negative outcomes, including suicidality (MacPhee & Andrews, 2006). Paralleling the relatively high levels of depressive symptoms, rates of completed suicides among First Nations youth have been estimated to be five to six times greater than those of adolescents in the general Canadian population (Health Canada, 2005). However, community-based research has made it clear that rates of distress and suicide are not uniform across First Nations communities, which provides opportunities to identify individual, collective, and community-level

factors that differentiate those with poor and positive health and social outcomes (Chandler & Lalonde, 1998).

Adolescence is also a period in which individuals frequently encounter numerous stressors (Bergman & Scott, 2001), including conflict with parents, mood disruptions, and circumstances or events stemming from increased risky behaviours (Steinberg, 2008). Additionally, First Nations youth face relatively high rates of trauma, such as child maltreatment, exposure to violence, and injuries, as well as adversity associated with low economic status (Blackstock, Trocmé, & Bennett, 2004; FNIGC, 2005; Health Canada, 2003; Pavkov, Travis, Fox, King, & Cross, 2010), which have been linked to poor physical and psychological outcomes (FNIGC, 2005; Walls, Chapple, & Johnson, 2007; Zahradnik et al., 2010). The legacy of collective traumas endured by previous generations, including Indian Residential School (IRS), may contribute to added vulnerability among First Nations youth whose families were affected by such events or circumstances (Bombay et al., in press; FNIGC, 2005).

Bullying among youth has recently become viewed as a public health issue due its seemingly high prevalence and associated negative outcomes (Craig & Pepler, 2003). Despite this, the relative prevalence and impacts of bullying in First Nations communities have not been investigated. Bullying has also been linked to loneliness (Due et al., 2005), which tends to peak during early adolescence followed by a gradual decrease in late adolescence (van Roekel, Scholte, Verhagen, Goossens, & Engels, 2010). Loneliness can occur without bullying and has also been associated with various negative physical and mental health outcomes (Heinrich & Gullone, 2006).

Although adolescence can be difficult for some, most experience positive levels of subjective well-being and perceive little difficulty as they make the transition into adulthood (Huebner, Drane, & Valois, 2000). In this regard, the majority of First Nations youth who participated in RHS 2002/03 reported that they were in balance physically, emotionally, mentally, and spiritually “most” or “all of the time” (FNIGC, 2005). The likelihood of youth developing problems increases rapidly as the number of risk factors increases in comparison with the number of protective factors (Dunst, Trivette, & Deal, 1994). Thus, in addition to identification of variables associated with increased adolescent risk or vulnerability, factors that may protect First Nations youth also must be explored. For example, self-esteem is thought to be among the most important traits associated with resilience in youth. The stability of self-esteem generally tends to increase from adolescence to early adulthood, making

it important to establish a positive self-concept during this period (Trzesniewski, Donnellan, & Robins, 2003). It has been suggested that minority youth face unique challenges in developing a positive sense of self due to ethnicity-related stressors, but it is uncertain whether this is the case among First Nations youth. Concepts related to one's perceived ability to overcome adversity and to have control over one's life circumstances, including mastery, have also been shown to be protective among American Indian youth and First Nations adults (Daniel, Cargo, Lifshay, & Green, 2004; Rieckmann, Wadsworth, & Deyhle, 2004) and may likewise act in a protective capacity among First Nations youth.

Social support is an important determinant of health and is thought to be crucial for helping youth deal with the challenges of adolescence (Cohen & Wills, 1985). Indeed, social support has been linked to positive outcomes among American Indian youth and Aboriginal youth in Canada (LaFromboise, Hoyt, Oliver, & Whitbeck, 2006; Richmond, Ross, & Egeland, 2007). Different types of support are proposed to act as protective factors through different mechanisms, which include tangible support, such as direct assistance or material aid; affective support, such as providing intimacy, nurturance, belonging; emotional or informational support, such as having a sense of being able to confide in and rely on another person; and positive social interactions, such as having someone to spend time with (Sherbourne & Stewart, 1991). Seeking social support has also been conceptualized as a protective coping mechanism that can buffer the impacts of acute and chronic stressors (Kawachi & Berkman, 2001). Conversely, a lack of social ties and feelings of loneliness have been associated with diminished well-being (Heinrich & Gullone, 2006).

Related to the aforementioned risk and protective factors, a growing body of research has demonstrated that youth participation in a variety of activities, such as school clubs, academic activities, and sports, is associated with increased self-esteem and self-mastery, as well as greater or better quality of social supports (Dodge & Lambert, 2009; Fredricks & Eccles, 2005; Ramey et al., 2010). Perhaps because of the benefits associated with youth engagement, participation in such extracurricular activities has also been associated with reduced distress, depression, and suicide risk, as well as increased psychological resilience (Fredricks & Eccles, 2005; Pavkov et al., 2010; Ramey et al., 2010).

Adolescence is an important period of psychological development during which behavioural patterns can become entrenched and can set the course for

adulthood behaviours and psychological well-being. As such, it might also be a critical stage of life during which prevention and intervention efforts may be most effective. This underscores the importance of identifying key determinants of wellness among youth that can guide the creation of such strategies. Although many of the risk and protective factors for wellness have been identified in other adolescent populations, it is important to assess their impacts on First Nations youth specifically, particularly because the relative contributions of these factors to wellness may differ among different cultural groups.

Although important, identifying the most effective ways to foster resilience in youth is not straightforward, as wellness involves complex interactions of factors operating at societal, community, family, and individual levels, which have an impact on each other over time. Moreover, the notion of well-being in adolescence is a complex construct that can be evaluated in a variety of ways that may not always be compatible or consistent with each other (Bergman & Scott, 2001). Therefore, this chapter examines various indices of well-being among First Nations youth and explores internal and external factors that may play a role in fostering well-being among adolescents in First Nations communities.

METHODS

Measures

Balance

Survey participants reported how often they felt balanced in their physical, emotional, mental, and spiritual lives on a scale ranging from 1 (“almost none of the time” to 4 (“all of the time”).

Suicide attempts and suicidal ideation

Survey participants were asked whether they had ever thought about committing suicide, and whether they had ever attempted suicide in their lifetime. Those who responded “yes” to either of these questions were then asked if these suicidal thoughts or attempts took place within the past year, during adulthood, during adolescence (from 12 to 17 years of age) or during childhood (under the age of 12).

Mastery

Levels of mastery were measured using the Self-Mastery Scale (Pearlin & Schooler, 1978). The scale comprises seven statements for which survey participants rated their agreement on a scale ranging from 0 (“strongly disagree”) to 4 (“strongly agree”). Examples of statements are

“I can do just about anything I really set my mind to” and “I have control over the things that happen to me.” Scores were summed, including items that were reverse-scored, for a minimum of 0 and a maximum of 28, with higher values indicating higher levels of mastery.

Social support

Availability of social support was measured using items from the MOS Social Support Survey (Sherbourne & Stewart, 1991). The original version of the MOS contains 18-items and used a 5-point response scale. The modified version of the MOS included in the RHS 2008/10 includes only 8-items and used a 4-point response scale (response range: 1 = “almost none of the time” to 4 = “all of the time”). An overall social support score was calculated by taking the average of the responses to the eight items. Higher scores for the overall support indicated greater availability of support.

Depressed mood

Survey participants were asked whether there was a time, during the previous 12 months, when they felt sad, blue, or depressed for two weeks or more in a row (response options: yes or no).

Perceived stress

Survey participants reported the degree to which they currently feel stressed on a five-point scale ranging from 1 (“not at all”) to 5 (“a lot”).

Loneliness

Survey participants reported the degree to which they currently feel lonely on a five-point scale ranging from 1 (“not at all”) to 5 (“a lot”).

Bullying

Survey participants were asked whether they were currently being bullied (response options: yes or no).

Indian Residential School (IRS)

Survey participants were asked whether their mother or father or any of their grandparents had attended IRS. First Nations youth with at least one parent who had attended IRS were classified as children of residential school attendees, even if they also had a grandparent who attended, and those with at least one grandparent who had attended were classified as grandchildren of attendees. Some survey participants did not answer at least one of the questions regarding their parents’ or grandparents’ attendance at IRS; hence, comparisons between IRS groups such as children of attendees, grandchildren of

attendees, and no parent or grandparent at IRS included only those who were able to answer all of the related questions. Those with no parents or grandparents who attended IRS—that is, non-IRS adults—were grouped accordingly. Additionally, unless survey participants reported that they were children or grandchildren of IRS attendees, those who did not answer at least one of the questions regarding their parents’ or grandparents’ attendance at IRS were classified as “unsure of IRS history,” resulting in four mutually exclusive categories.

Self-esteem

Self-esteem was measured using four of the original eight items from the General Self Scale of the Self-Description Questionnaire (Marsh, Smith, & Barnes, 1983). Survey participants reported their agreement with the items on a scale ranging from 0 (“strongly disagree”) to 4 (“strongly agree”). Responses were summed with scores ranging from 0 to 16, and higher scores indicated higher self-esteem.

Loved

Survey participants were asked to report the degree to which they currently feel loved on a five-point scale ranging from 1 (“not at all”) to 5 (“a lot”).

Use of emotional or mental health supports

Survey participants were asked whether they utilized (“seen or talked on the telephone with”) any of seven listed potential sources of emotional or mental health supports in the past 12 months. These included parents, other family members, friends, traditional healer, family doctor, counselor, and social worker.

Sources of support for specific problems

Survey participants were presented with a list of potential problems and asked whom among the following they would go to first for help: parent or guardian; other family member; friends my age; adult friend; principal, teacher, or school counselor; doctor or nurse; traditional healer; no one. Due to low response rates for “adult friend” and “principal, teacher, or school counselor,” for the analyses these were grouped into one category labeled “other adult.” The problems listed included family problems, relationship problems (boyfriend or girlfriend), problems with friends, financial problems, problems with drugs or alcohol, feeling angry or out of control, feeling depressed, sexual or physical assault, sexually transmitted infections, birth control, and pregnancy. Survey participants were also grouped into those who reported that they turned to no one for at least one problem, and those who reported that they would turn to someone for each problem.

Extracurricular activities

Survey participants were asked how often they participated in the following activities outside of school hours: sports teams or lessons; art or music groups or lessons; traditional singing, drumming, or dance groups or lessons; and a job, such as babysitting, working at a store, or tutoring. Response options included “never,” “less than once per week,” “one to three times per week,” and “four times or more per week.” First Nations youth were also grouped into those who never participated in any activities, those who occasionally participated in at least one activity (less than once per week), and those who participated in an activity at least once per week.

Community cultural events

Survey participants reported how often they participated in their local community’s cultural events on a scale ranging from 1 (“never”) to 5 (“almost always”).

Alcohol consumption

Survey participants were asked whether they had had a drink of beer, wine, liquor or any other alcoholic beverage during the 12 months prior to the survey. Those who responded “yes” were asked about how often they had had five or more alcoholic drinks on one occasion. Response options included “never,” “less than once a month,” “once per month,” “two to three times per month,” “once per week,” “more than once per week,” “every day.”

Parental education

Survey participants were asked to report their mother’s and father’s highest level of education. Those who reported that both parents did not complete high school were compared to youth who had at least one parent who had a high school education.

Educational aspirations

Survey participants reported the highest level of education they would like to achieve, and they were grouped into the following categories: “not sure or don’t know,” “high school,” “college or trade school,” “undergraduate, graduate, or professional degree,” “other.”

RESULTS

Indices of Wellness

Balance

As the majority of First Nations youth reported feeling balanced in RHS 2002/03 (FNIGC, 2005), it is encouraging that there were few changes over

time in this regard. In RHS 2008/10, the majority of First Nations youth reported that, “most” to “all of the time” they felt balanced physically (75.0%), emotionally (65.3%), mentally (65.6%), and spiritually (60.8%), 95% CIs [± 2.8], [± 2.2], [± 2.4], and [± 2.3], respectively. The only gender difference observed was the higher level of perceived physical balance among First Nations males than females (79.3% vs. 70.4%, 95% CIs [± 2.4] and [± 2.6], respectively).

Likely reflecting the numerous transitions associated with adolescence, the proportion of First Nations youth feeling balanced emotionally, mentally, and spiritually was lower compared to First Nations adults. These findings are consistent with those in the general Canadian population, indicating that emotional stability increases throughout adolescence into early adulthood (Klimstra, Hale, Raaijmakers, & Meeus, 2009) and that perceptions of spiritual balance also tend to increase with age (Barry, Nelson, Davarya, & Urry, 2010).

Depressive symptoms

Approximately one quarter (26.1%, 95% CI [± 2.0]) of First Nation youth reported that there was a time when they felt sad, blue, or depressed for two weeks or more in a row in the 12 months prior to the RHS 2008/10. A higher proportion of females (33.8%, 95% CI [± 3.0]) reported symptoms of depression compared to males (17.2%, 95% CI [± 2.4]).

Although the overall proportion of First Nations youth with depressed mood (25.4%, 95% CI [± 1.8]) did not change from RHS 2002/03 (27.2%), some noteworthy demographic variations have occurred. First, among older First Nations youth—those aged 15 to 17 years—the prevalence of depressive symptoms decreased for both males (16.7%) and females (36.5%, 95% CIs [± 2.9] and [± 4.0]). In contrast, among younger First Nations youth—those aged 12 to 14 years—the proportion with depressed mood rose slightly (17.8% among males and 31.1% among females, 95% CIs [± 2.6] and [± 4.6], respectively).

For the most part, a lower proportion of youth who felt balanced (physically, mentally, emotionally, spiritually) most to all of the time reported feeling symptoms of depression, compared to youth who felt balanced ‘none’ to ‘some of the time’ (all $ps < .05$).

It must be noted that although depressed mood is an essential feature of a major depressive episode, additional criteria must be met for a diagnosis of major depression, rendering it difficult to make comparisons with rates of depression in the general population.

Suicide

The large majority of First Nations youth have not considered suicide (83.5%, 95% CI [± 1.4]) nor attempted suicide in their lifetime (94.1%, 95% CI [± 1.0]) (see Figures 29.1 and 29.2).

Figure 29.1. Proportion of First Nations Youth in RHS 2002/03 and RHS 2008/10 who Reported Having Thoughts of Suicide at Some Point in their Lifetime, by Gender and Age



Figure 29.2. Proportion of First Nations Youth in RHS 2002/03 and RHS 2008/10 who Attempted Suicide at Some Point in their Lifetime, by Gender and Age



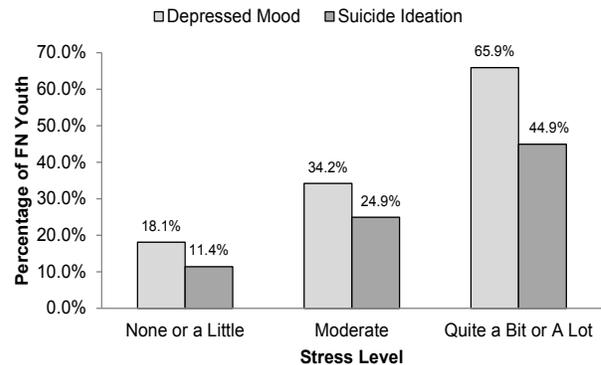
Rates of suicide ideation are much higher than those observed in the general population. This disparity was especially marked with respect to suicidal ideation; among youth aged 15 to 17 years in the general Canadian population, 7.1% (95% CI [± 10.4]) indicated that they had considered suicide in their lifetime, whereas 20.5% (95% CI [± 2.4]) of First Nations youth of the same age reported such ideations. Furthermore, the rate of completed suicides among Aboriginal adolescents in Canada was approximately four to five times higher than that among the general Canadian population (Kirmayer et al., 2007).

Risk Factors

Perceived stress

In addition to being at a higher risk for experiencing traumatic events (Bergman & Scott, 2001), adolescents face additional stressors related to bullying, violence in the home or community, and experiences related to other risk situations (Shaw, 2000). As described earlier, adverse events during childhood and adolescence may influence central nervous system and neuroendocrine system functioning, which are related to the regulation of stress. These physiological changes have been associated with lasting effects such as increased vulnerability to later stressor-provoked anxiety and depression, post-traumatic stress disorder, and elevated risk of suicide (Anisman, Zaharia, Meaney, & Merali, 1998; Heim et al., 2002; Kendler, Kuhn, & Prescott, 2004). As shown in Figure 29.3, levels of depressed mood increased in concert with perceptions of stress.

Figure 29.3. Proportion of First Nations Youth who Reported Depressed Mood and Suicidal Ideation in the 12 Months prior to RHS 2008/10, by Perceived Level of Stress



Loneliness

Most First Nations youth reported feeling ‘little’ to ‘no’ loneliness (87.0%, 95% CIs [± 1.6]); very few reported feeling moderately lonely (5.4%, 95% CIs [± 1.0]) or ‘quite a bit’ to ‘a lot’ of loneliness (7.6% 95% CIs [± 1.0]).

Loneliness likely contributes to symptoms of depression: 74.5% (95% CI [± 5.5]) of First Nations youth who felt lonely ‘quite a bit’ to ‘a lot’ reported symptoms of depression, 53.3% (95% CI [± 9.8]) of those who feel moderately lonely reported depression, and 19.5% (95% CI [± 1.9]) of those who felt ‘a little’ to ‘not at all’ lonely reported depression.

Bullying

Little is known about the prevalence and impact of bullying among First Nations youth. In RHS 2008/10, a minority of First Nations youth reported that they were currently being bullied (11.7%, 95% CI [± 1.6]). First Nations youth aged 12 to 14 years encountered bullying more often than First Nations youth aged 15 to 17 years (16.5% vs. 7.0%, 95% CIs [± 2.5] and [± 1.5], respectively). In contrast to the gender differences seen in the general population (Craig & Pepler, 2003), First Nations males and females did not differ in their rates of victimization. It appears that the prevalence of bullying may be lower among First Nations youth living in First Nations communities compared to those bullying among youth in the general population, as approximately 34% of boys and 27% of girls aged 11 to 15 years reported being bullied at least once in the previous six weeks in a study among Canadian adolescents (Craig & Yossi, 2004). In contrast, research in the United States indicated that violent victimization in mainstream high schools was higher among American Indians than among other ethnic groups (Pavkov et al., 2010), but this was likely influenced by the fact that these youth were attending mainstream schools vs. schools located on reserve or in Northern communities. The proportions of First Nations youth attending school on- and off-reserve are not known in the current study, but potential differences in rates of bullying between youth attending school on- and off-reserve might be an important factor that ought to be considered.

Although the prevalence may be relatively lower, the negative impacts of bullying on First Nations youth are consistent with those seen in the general Canadian population. A higher proportion of First Nations youth who were currently being bullied reported experiencing depressed mood (44.2% vs. 22.7%, 95% CIs [± 6.3] and [± 4.6] and [± 1.2], respectively), compared to First Nations youth who were not currently being bullied.

Indian Residential School

Many youth reporting having either grandparents or parents who had attended residential schools: 43.3% (95% CIs [± 2.5]) had at least one grandparent who attended residential school (but not parents), 11.8% (95% CIs [± 1.7]) with at least one parent who attended residential school (but not grandparents), 23.1% (95% CIs [± 2.3]) with at least one grandparent and one parent who attended residential school, and 21.8% (95% CIs [± 2.3]) with neither parent nor grandparent who attended.

The proportion of youth who reported symptoms of depression differed depending on parent/grandparent residential school status: 20.4% (95% CIs [± 3.5]) of youth with neither parent who attended residential school reported depression, 25.1% (95% CIs [± 3.3]) of youth with at least one grandparents (but not parents) who attended reported depression, 31.4% (95% CIs [± 4.7]) of youth with at least one parent (but no grandparents) who attended reported depression, and 30.8% (95% CIs [± 4.7]) of youth with both parents who attended reported depression.

Resource Variables

Self-esteem and mastery

Self-esteem is a strong marker for mental health and well-being among adolescents and can act as a psychological protective factor against the harmful effects of stress. Overall levels of self-esteem among First Nations youth (M = 12.7, 95% CI [± 0.1]) were only slightly lower than levels reported among youth aged 12 to 17 years in the general Canadian population (M = 13.1, 95% CI [± 0.1]) (Weaver & Habibov, 2010). Table 29.1, shows the degree to which self-esteem varied by sex.

Table 29.1. Proportion of First Nations Youth who Agree or Disagree with Statements Related to Self-esteem.

	Strongly Agree % [95% CI]	Agree % [95% CI]	Neither agree nor disagree % [95% CI]	Disagree or strongly disagree % [95% CI]
In general, I like the way I am.				
Males	47.1 [± 2.8]	44.0 [± 2.7]	5.3 [± 1.4]	3.6 [± 1.3]
Females	40.7 [± 2.9]	43.5 [± 2.8]	11.0 [± 1.7]	4.8 [± 1.4]
Overall, I have a lot to be proud of.				
Males	45.6 [± 3.0]	42.8 [± 2.8]	8.4 [± 1.5]	3.2 [± 1.7] ^E
Females	39.2 [± 2.8]	45.7 [± 2.6]	11.3 [± 2.7]	3.8 [± 1.0]
A lot of things about me are good.				
Males	40.4 [± 3.0]	46.3 [± 2.9]	10.1 [± 1.6]	3.3 [± 1.3]
Females	34.8 [± 3.0]	46.2 [± 2.8]	13.2 [± 2.0]	5.7 [± 1.7]
When I do something, I do it well.				
Males	33.8 [± 3.1]	51.3 [± 3.3]	11.9 [± 2.0]	3.0 [± 1.0]
Females	26.9 [± 2.5]	50.3 [± 3.0]	17.7 [± 2.3]	5.1 [± 1.4]

^E High sampling variability. Use figures with caution.

A sense of mastery has also been found to be a resilience factor for youth. Consistent with trends in the general Canadian population, levels of mastery were lower among First Nations female youth than among First Nations male youth ($M = 18.5$ vs. $M = 19.4$, 95% CIs $[\pm 0.2]$ and $[\pm 0.2]$, respectively). In addition, younger youth (12 to 14 years) reported lower mastery than older youth (15 to 17 years) ($M = 18.6$ vs. $M = 19.3$, 95% CIs $[\pm 0.2]$ and $[\pm 0.2]$, respectively).

Both self-esteem and mastery were related to various aspects of well-being among First Nations youth. For example, First Nations youth who were very or somewhat satisfied with their weight had higher levels of self-esteem ($M = 13.3$, 95% CI $[\pm 0.1]$) than those who were neither satisfied nor dissatisfied ($M = 12.2$, 95% CI $[\pm 0.3]$) and somewhat or very dissatisfied with their weight ($M = 11.3$, 95% CI $[\pm 0.4]$).

Mastery has been shown to influence educational aspirations in American Indian youth and in the general population (Whitesell, Mitchell, & Spicer, 2009). Levels of mastery were higher among First Nations youth who reported that they would like to get an undergraduate, graduate, or professional degree ($M = 19.5$, 95% CI $[\pm 0.3]$) and among those who wanted to attend college or trade school ($M = 19.0$, 95% CI $[\pm 0.3]$) than among First Nations youth who did not plan to continue with their education after high school ($M = 18.3$, 95% CI $[\pm 0.3]$) and those who reported that they did not know or were unsure or who did not answer ($M = 18.6$, 95% CI $[\pm 0.4]$).

While self-esteem and mastery have been known to be effective buffers against stressful experiences, stressors and particularly chronic strains have also been shown to influence levels of these resource variables by eroding feelings of optimism and mastery (Lincoln, 2007). First Nations youth who experienced depressed mood in the 12 months prior to RHS 2008/10 had lower levels of self-esteem ($M = 11.7$ vs. $M = 13.1$, 95% CIs $[\pm 0.3]$ and $[\pm 0.2]$) and mastery ($M = 17.4$ vs. $M = 19.6$, 95% CIs $[\pm 0.3]$ and $[\pm 0.2]$). In addition, levels of mastery were lower among First Nations youth being bullied than among those not being bullied ($M = 17.2$ vs. $M = 19.2$, 95% CIs $[\pm 0.7]$ and $[\pm 0.2]$, respectively).

Social support resources

Feeling loved and connected to others is an important determinant of wellness among all people. Although the majority of First Nations youth felt they were loved “a lot” or “quite a bit” (81.5%, 95% CI $[\pm 1.5]$), this left approximately one out of five

First Nations youth (18.5%, 95% CI $[\pm 1.6]$) who felt only moderately, a little, or not at all loved.

A higher proportion of First Nations youth who reported feeling *moderately to not at all loved* reported symptoms of depression and lower self-esteem, compared to youth who felt more loved (37.8% vs. 22.0%, 95% CIs $[\pm 4.6]$ and $[\pm 2.3]$ for depression, $M = 11.1$ vs. $M = 13.2$, 95% CIs $[\pm 0.3]$ and $[\pm 0.1]$, for self-esteem).

Across all items of support, the majority of First Nations youth reported receiving social support most or almost all of the time.

First Nations youth reported that they discussed their emotional or mental health most often with friends (60.5%, 95% CI $[\pm 1.9]$), with a slightly higher proportion of those aged 15 to 17 years than of those aged 12 to 14 years turning to friends (63.8% vs. 57.1%, 95% CIs $[\pm 2.8]$ and $[\pm 2.7]$). Parents and other immediate family members (49.1%) were the next most utilized emotional health supports, followed by other family members (47.1%), counselors (13.4%), and family doctors (8.9%), with the fewest number of First Nations youth turning to social workers (5.9%) and traditional healers (4.8%), 95% CIs $[\pm 2.3]$, $[\pm 2.2]$, $[\pm 1.6]$, $[\pm 1.7]$, $[\pm 0.9]$, and $[\pm 1.1]$, respectively.

Figures 29.9, 29.10 and 29.11 demonstrate who First Nations youth chose to approach to seek support for their problems. With the exception of relationship (boyfriend/girlfriend) problems, wherein most turned to friends for support, First Nations youth most often approached parents for support first. For problems with friends and family, friends and other family members were also commonly used as the first source of support. After parents, friends were the next most commonly utilized support for emotional issues, such as anger and depression; substance abuse; and experiences with assault. For issues related to sexual health, First Nations youth also reported consulting with doctors or nurses, especially for issues related to sexually transmitted infections and birth control. As observed in RHS 2002/03, the number of First Nations youth who reported that they would not turn to anyone for support is disconcerting, which tended to be around 10% of First Nations youth for the majority of problems.

Figure 29.9 Proportion of First Nations Youth who would Seek Support from Parents or Others for Various Problems

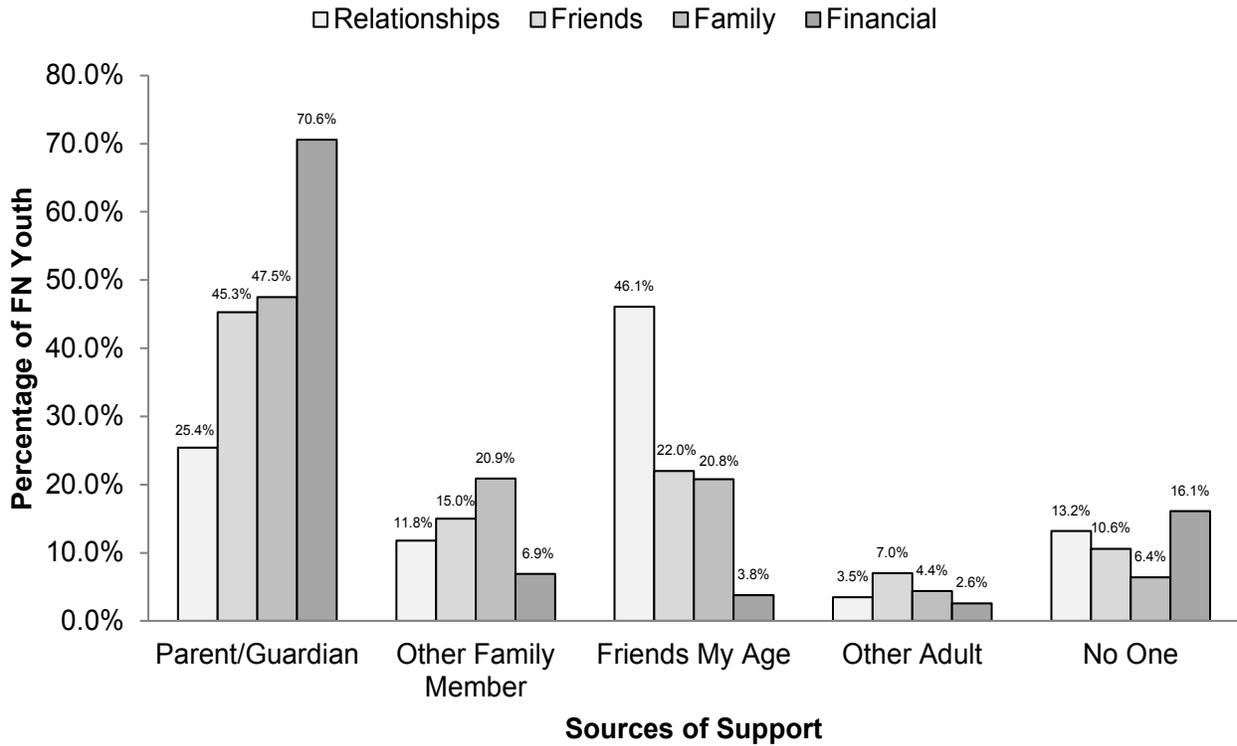


Figure 29.10 Proportion of First Nations Youth who would Seek Support from Parents or Others for Various Problems

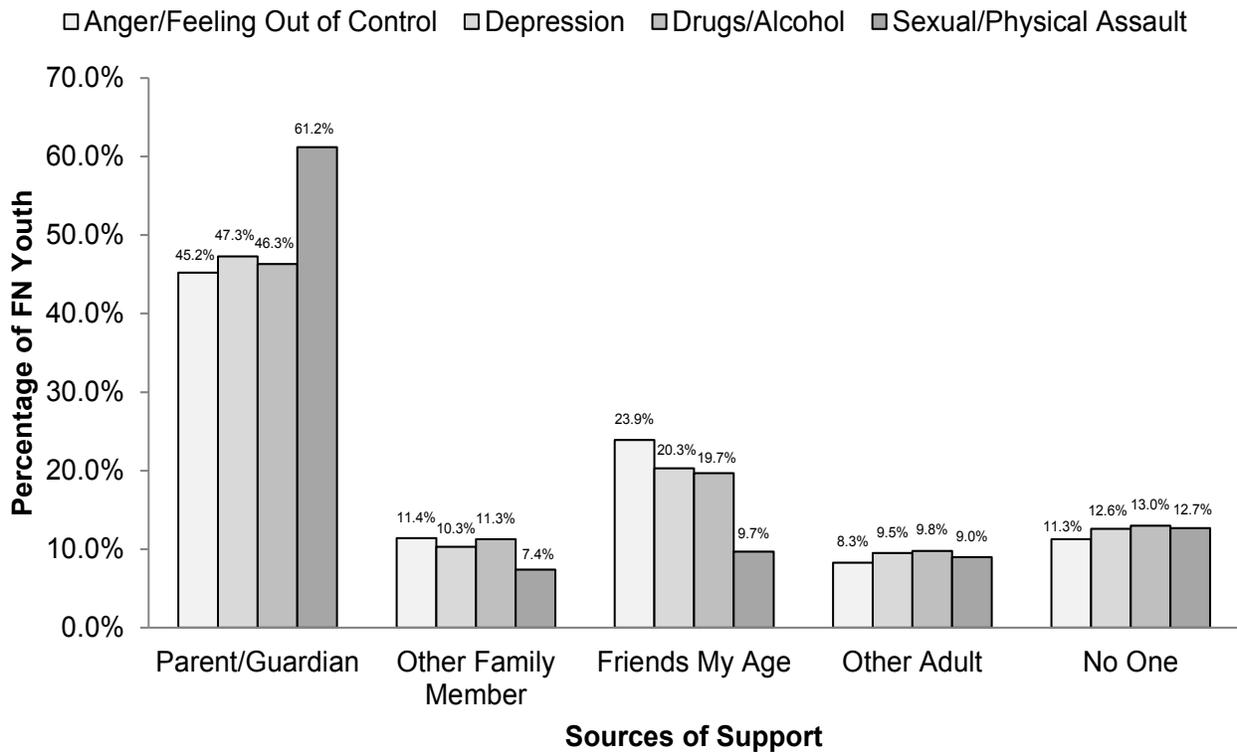
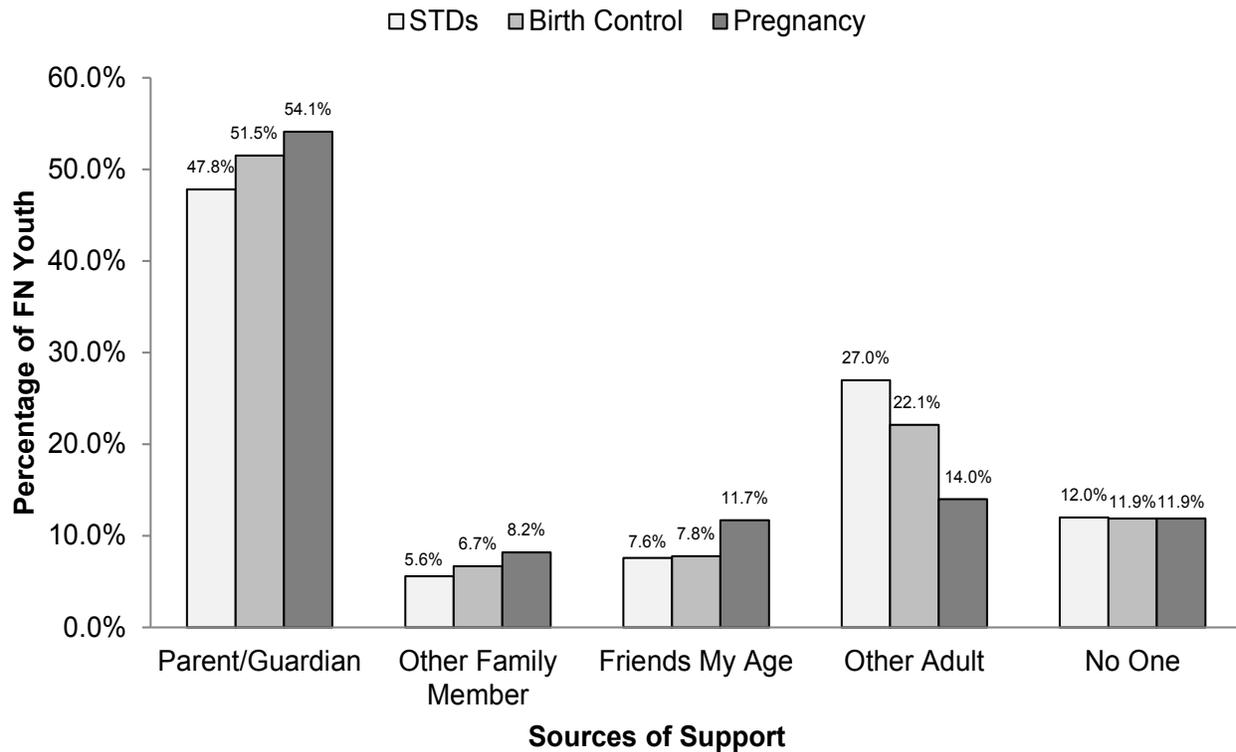


Figure 29.11 Proportion of First Nations Youth who Would Seek Support from Parents or Others for Various Problems



Extracurricular and cultural activities

Participation in sports teams or activities was the most common activity among First Nations youth. A slightly higher proportion of female youth than male youth reported never taking part in sports teams or lessons outside of school hours (40.0% vs. 30.2%, 95% CIs [±3.0] and [±2.7], respectively), with half of First Nations male youth participating in these sports at least once per week compared to one-third of First Nations female youth (50.6% vs. 33.4%, 95% CI [±3.0] and [±2.9]).

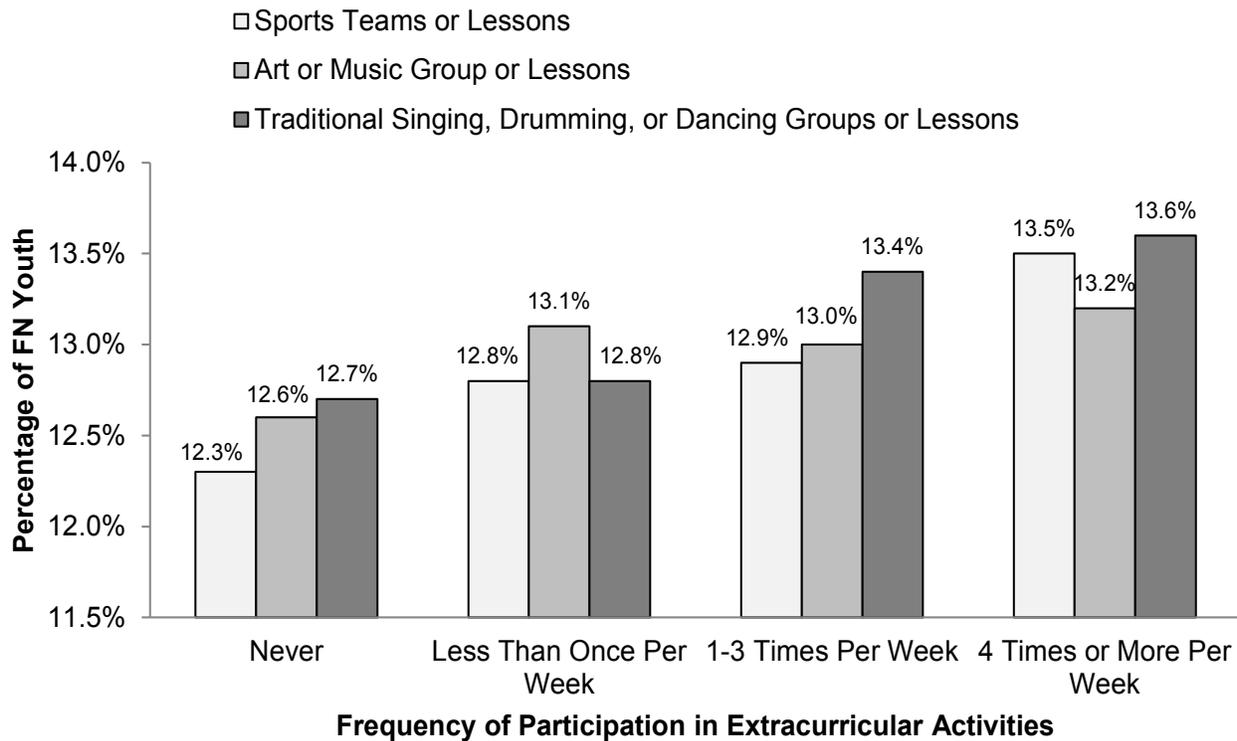
Having a part-time job outside of school hours was the second most common activity, but in this case, a greater proportion of First Nations male youth than female youth reported never working at a job (59.7% vs. 33.3%, 95% CIs [±3.1] and [±2.9]). Just over one-third of First Nations female youth reported that they worked at least once per week, compared to just under one-fifth of First Nations male youth (35.6% vs. 18.5%, 95% CIs [±2.1] and [±2.2]).

With the exception of having a part-time job, participation in any extracurricular activity was associated with heightened self-esteem (see Figure 29.12). Furthermore, compared to First Nations youth who never or only occasionally participated in extracurricular activities,

First Nations youth who took part in any activity at least once per week reported greater social support ($M = 3.4$, vs. $M = 3.2$, 95% CIs [±0.1] and [±0.1]) and mastery ($M = 19.3$ vs. $M = 18.5$, 95% CIs [±0.2] and [±0.3]) and were more likely to feel balanced most or all of the time physically (80.6% vs. 66.3%, 95% CIs [±2.0] and [±4.6]). These First Nations youth were also more likely to feel balanced spiritually (64.0% vs. 56.2%, 95% CIs [±2.5] and [±5.1]), emotionally (68.5% vs. 60.4%, 95% CIs [±2.8] and [±4.9]), and mentally (68.8% vs. 62.4%, 95% CIs [±2.8] and [±4.9]) than were First Nations youth who participated in no activities.

Finally, First Nations youth who reported almost always participating in their community’s cultural events had higher levels of support ($M = 3.4$, 95% CI [±0.1]) and self-esteem ($M = 13.3$, 95% CI [±0.2]) than did First Nations youth who never participated ($M = 3.2$ and $M=12.3$, respectively, 95% CIs [±0.1] and [±0.4]).

Figure 29.12. Mean Levels of Self-esteem among First Nations Youth, by Participation in Extracurricular Activities



Note. Sports teams or lessons: for never, $n = 1,663$; for less than once per week, $n = 932$; for one to three times per week, $n = 1,417$; for four times per week, $n = 579$. Art or music groups or lessons: for never, $n = 3,483$; for less than once per week, $n = 545$; for one to three times per week, $n = 349$; for four times per week, $n = 135$. Traditional singing, drumming, or dancing groups or lessons: for never, $n = 3,377$; for less than once per week, $n = 710$; for one to three times per week, $n = 280$; for four times per week, $n = 106$.

DISCUSSION

The majority of First Nations youth felt balanced in all aspects of wellness and did not report persistent depressed mood, suicidal thoughts, or suicide attempts. Considering the numerous challenges associated with adolescence and the increased exposure to various risk factors among First Nations youth, these reports of positive well-being speaks to their resilience. Unfortunately, compared to youth in the general Canadian population, rates of certain indices of distress are still disproportionately high. Although levels of perceived stress were low for most First Nations youth, and only a minority reported being bullied, greater exposure to other traumatic events and chronic stressors that were not considered in the current survey might contribute to the health disparities observed (Karmali et al., 2005; Lemstra et al., 2008). The relative prevalence and contributions of various stressors and traumas to poor health outcomes, as well as the associated risk factors, must be better understood for the development of interventions aimed at reducing the burden of trauma among First Nations individuals (Karmali et al., 2005).

The continued impacts of IRS evident among First Nations youth in this survey are congruent with reports that thoughts of historical loss, including losses related to IRS, were common among First Nations youth in First Nations communities and American Indian youth on-reserve, which were, in turn, associated with depressive symptoms (Whitbeck, 2009). Although there are likely multiple factors that might contribute to this, increased perception of discrimination has been identified as one factor contributing to intergenerational impacts of IRS among First Nations adults (Bombay et al., in press), which may also have an impact on First Nations youth whose parents or grandparents attended IRS. Although limited research has assessed the impacts of discrimination on First Nations youth, negative consequences related to discrimination have been documented among First Nations adults and American Indian youth (Bombay et al., 2010; Whitbeck et al., 2001). Further research is needed to identify other individuals or subgroups that may be more or less likely to perceive discrimination, and to explore factors that may buffer against the negative impacts of discrimination. For example, certain aspects of cultural identity and participation in traditional

activities have been shown to buffer against perceived discrimination among First Nations and American Indian adults (Bombay et al., 2010; Whitbeck, McMorris, Hoyt, Stubben, & Lafromboise, 2002), and have also been shown to have direct effects on well-being (Rieckmann et al., 2004). These protective effects are consistent with the higher levels of self-esteem and social support observed among those who participate in community cultural events. However, a study among Navajo youth found that greater identification with their culture was associated with increased depressive symptoms (Thrane, Whitbeck, Hoyt, & Shelley, 2004). These contradictory findings are likely due to the use of different conceptual and operational definitions of cultural identity (Cameron, 2004; McCoy & Major, 2003). The link between different aspects of identity and well-being, particularly in relation to discrimination, ought to be examined more thoroughly.

Interesting questions were also raised upon examination of changes in levels of distress from RHS 2002/03. Specifically, the misleading appearance of stability in the prevalence of depressed mood and suicide attempts when considering all First Nations youth disappeared upon separate analysis of younger youth aged 12 to 14 years and older youth aged 15 to 17 years. This reflected the fact that rates of depression and suicide attempts increased among younger adolescents yet decreased among older youth. Further monitoring is needed to determine whether this reflects a trend of earlier emergence of symptoms or increasing levels of distress among First Nations youth, or simply a greater willingness to express psychological distress due to decreased stigma associated with reporting symptoms (Fichter, Xepapadakis, Quadflieg, Georgopoulou, & Fthenakis, 2004). The findings of the present investigation do not speak directly about the factors that might account for age-related differences regarding suicide attempts and depressive symptoms. Given that community-level factors are known to be important in influencing distress levels among First Nations youth (Chandler & Lalonde, 1998), it is possible that the observed behavioural trends reflected changing circumstances specific to First Nations youth living in First Nations communities. Alternatively, larger societal changes that have been proposed to account for evidence of rising distress levels and/or earlier emergence of symptomatology among youth in North America (Twenge et al., 2010; World Health Organization, 2000) and internationally may likewise be having an impact on First Nations adolescents (e.g., England [Collishaw, Maughan, Natarajan, & Pickles, 2010], Scotland [Sweeting, Young, & West, 2009], Netherlands [Tick, van der Ende, & Verhulst, 2007],

Finland [Sourander et al., 2004], and Sweden [Kosidou et al., 2010]). For example, altered social support or family-related issues stemming from increases in lone-parent or reconstituted households, increasing rates of obesity in conjunction with a greater focus on appearance and materialism, and changes in lifestyles of youth, such as increased substance use, are among some of the proposed explanations (Sweeting, West, Young, & Der, 2010).

It is somewhat curious that the changes of suicidal ideation in both age groups did not parallel changes in depressed mood or suicide attempts. Although the increased prevalence of depressed mood is likely implicated in the rise of suicidal thoughts among younger First Nations youth, the greater increase in suicidal ideation suggests that depressed mood does not fully account for this observation. Even more paradoxical, based on the decreases of depressed mood and suicide attempts, older First Nations youth in RHS 2008/10 seemed to be faring better than had those in RHS 2002/03, yet an increase in suicidal ideation was also detected in this age group. These findings, in conjunction with the large proportion of First Nations youth without depressed mood who reported suicidal thoughts, suggest that factors other than depressed mood are contributing to the apparent rise in certain manifestations of distress. In fact, it has been suggested that suicidal ideation may better serve as a marker of psychological distress rather than one based on depressed mood or intent to die (Gmitrowicz, Szymczak, Kotlicka-Antczak, & Rabe-Jablonska, 2003). In this regard, increases of suicidal ideation might reflect rumination tied to specific events or circumstances, or could be associated with potential increases in other disorders not measured in the current survey. Studies conducted internationally have also suggested that externalizing disorders among youth are increasing, including conduct disorders and substance abuse (Collishaw, Maughan, Goodman, & Pickles, 2004). In fact, higher rates of conduct disorders and substance use disorders and increased comorbidity rates were observed among a large sample of First Nations and American Indian youth (Whitbeck, Yu, Johnson, Hoyt, & Walls, 2008), all of which have been associated with suicidality (Pelkonen & Marttunen, 2003). Additionally, early onset of these disorders was also observed compared to what is typically observed in the general population (Whitbeck et al., 2008).

It is also possible that specific characteristics of depression may be particularly relevant when considering First Nations youth. For example, feelings of hopelessness were found to be associated with drinking to cope and

excessive drinking among First Nations youth (Stewart et al., 2010) and may be more directly related to suicidality than depressed mood per se (Thompson, Mazza, Herting, Randell, & Eggert, 2005). In this regard, hopeless individuals may perceive fewer reasons for living, despite having the same objective severity of psychological disorders and similar exposure to adverse life events.

In contrast to the relatively high levels of distress, self-esteem was generally high among most First Nations youth. It was suggested that the high self-esteem observed among First Nations youth living in First Nations communities was due to the fact that they were largely surrounded by racially similar peers, as racial density has been related to levels of self-esteem in other ethnic groups (Twenge & Crocker, 2002; Whitesell et al., 2009). In this regard, comparisons between First Nations youth who live or attend school in First Nations communities and those who live or attend school outside of First Nations communities may help to elucidate the factors that contribute to self-esteem in First Nations adolescents. The importance of variables related to self-concept was evident in the current survey, as both self-esteem and mastery were associated with various positive outcomes. Self-esteem has also been associated with a sense of mastery and the use of positive coping strategies among American Indian youth living on-reserve (Whitesell et al., 2009). As previously mentioned, cultural identity may also be protective, particularly having pride in one's group membership (Bombay et al., 2010).

Several additional variables, including coping strategies and appraisals of stress, likely play a role in the wellness of First Nations youth, but little research has explored these factors in this population. It did appear, however, that positive outcomes were associated with social support and support seeking in the current survey. This is consistent with suggestions that social support and related concepts may be particularly important among Aboriginal populations, considering the communal nature of most cultures (Richmond et al., 2007).

The prevalence and impacts of unsupportive social interactions, such as minimizing another person's problems or distress or blaming the person for their problems, should also be explored. Unsupport has been related to various health outcomes over and beyond the impacts of social support (Ingram, Betz, Mindes, Schmitt, & Smith, 2001). Considering that First Nations youth in the current survey were most likely to turn to their parents when confronted with a problem, unsupport from parents may be particularly detrimental. Additionally, certain groups of First Nations

youth, including those intergenerationally affected by IRS, reported low levels of support more often. These and other subgroups of First Nation youth may also be more likely to be exposed to higher levels of unsupport.

It has been suggested that high levels of hopelessness and boredom among First Nations youth contribute to distress and depression present in First Nations communities (Kirmayer et al., 2007; Stewart et al., 2010). Hopelessness and boredom have been shown to decrease among non-Aboriginal adolescents who participated in various extracurricular activities (Fredericks & Eccles, 2006; Larson, 2000; Taliaferro, Rienzo, Miller, Pigg, & Dodd, 2010). Based on the current data, involvement in extracurricular activities and community cultural events also seemed to be associated with increased self-esteem, mastery, social support, and perceived balance. Participation in traditional and cultural activities might also contribute to positive cultural identities. However, considering the numerous positive outcomes observed with these activities, First Nations youth engagement seems to be a promising strategy for improving wellness.

CONCLUSIONS

The present findings provide evidence of continued distress among First Nations youth living on-reserve or in northern communities and point to certain factors that might contribute to their resilience. The results also raise many questions that require further investigation. In particular, longitudinal analyses should be carried out to monitor potential changes in well-being and to elucidate the temporal ordering of indices of distress, as well as factors that may be protective or put First Nations youth at risk. Other important variables that have been shown to be influential in adolescent wellness also must be explored in First Nations youth, such as cognitive appraisals and coping strategies. Continued research could potentially facilitate the identification of priorities and guide the development of efforts aimed at improving well-being among First Nations youth in this critical period of development. It is already clear, however, that in addition to targeting individual vulnerabilities and protective factors, underlying contextual and social factors must be addressed. The urgency of effective health promotion strategies for First Nations youth is especially vital owing to the large representation of youth who comprise today's First Nations population, a trend that is expected to continue (Michalowski, Loh, Verma, Germain, & Grenier, 2005).

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The Health and Well-Being of First Nations Children



The RHS child questionnaire is comprised of data from individuals aged 0-11 years. Data collection was conducted between June 2008 and November 2010 in a targeted 250 First Nations communities across Canada. All individuals that took part in the survey were randomly selected using locally updated band membership lists. The child survey was completed via a proxy (parent/guardian) with a median completion time of 22 minutes. All survey data were collected on mobile laptops using Computer Assisted Personal Interviewing software (CAPI).

A total of 5,877 First Nations children across 216 communities were part of the RHS child results.

Child

Chapter 30

Household Environment

EXECUTIVE SUMMARY

The household environment is a large part of early childhood development, helping to set the stage for future emotional and physical growth. The results of the First Nations Regional Health Survey (RHS) 2008/10 reveal that First Nations children living in First Nations communities are often surrounded by family. Fewer than half of all children live with both of their biological parents. First Nations children live with an average of 5.7 other household members at least half of the time. The proportion of First Nations children currently receiving child care has decreased since the previous RHS 2002/03 and is lower than that observed in the general Canadian population. Of those who are in childcare, there appears to have been a shift away from informal care to more formal day care centres since RHS 2002/03. With respect to other household factors, levels of parental education and household incomes are low compared to Canadian averages. These inequities, including parents' level of education, household income, and household crowding, must be addressed.

KEY FINDINGS

- Approximately 43% of First Nations children live in a household with an annual household income of less than \$20,000
- First Nations household with children had an average of 3.4 children compared to 1.1 children in general Canadian households.
- On average, First Nations children live with 5.7 household members at least half of the time. No significant change in household membership was observed since the earlier RHS 2002/03.
- RHS 2008/10 demonstrated that 37.5% of First Nation children are living in a crowded home, an increase from 32.4% observed in the previous RHS 2002/03.
- 48.4% of First Nations children live with both biological parents, whereas 39.2% live with their biological mother but not their biological father.
- 15.4% of First Nations children live in homes that also include a grandparent (compared to 3.8% of children in the general Canadian population). Few children (4.3%) live with only their grandparents (compared to 0.5% of children in the general Canadian population).
- Approximately half as many First Nations children are currently receiving child care compared to those in the general Canadian population (28.8% vs. 53.8%).
- Overall, the proportion of First Nations children receiving child care has decreased in the period between RHS 2002/03 and RHS 2008/10 (34.7% vs. 28.8%).
- Most children in child care were cared for in home settings; however, the use of more formal day care settings, including daycare centres, nursery school or preschool, and before and after school programs, increased by almost 10% in the period between RHS 2002/03 and RHS 2008/10.

What we have today is because someone stood up before us. What our seventh generation will have is a consequence of our actions today.

—Winona LaDuke, Anishnabe

INTRODUCTION

The family and household structure in which we grow and learn in early childhood plays an integral role in shaping who we will become. Our future opportunities, education, cultural knowledge, as well as our physical, mental, emotion, and spirit balance all stem, in part, from our early childhood experiences. In First Nations cultures, family and households have deep cultural significance, particularly with regards to child rearing. The extended family has traditionally played a key role in raising children. While young parents hunted and gathered, grandparents and Elders provided cultural and spiritual teaching and guidance for children. As a result of many factors, including colonization, residential school experience, treaties, and the Indian Act, First Nations communities and families have changed over time. Despite this, family continues to be of central importance for many First Nations people.

Research literature provides evidence that household environment factors (e.g., household membership/child care arrangements, household income, parental education) are of paramount importance in predicting future outcomes for First Nations children. For instance, there are recognized benefits to living within a larger family network, including transmission of language and traditional values, division of labour, and child care, among others (Bougie, 2011). Further, living with extended family can be a source of social, emotional, and mental support (Public Health Agency of Canada [PHAC], 2003).

Research conducted in the general Canadian population has found that children who are raised in two-parent homes typically fare better than those who are raised in single-parent homes. Canadian children reared in single-parent homes were less likely to attend post-secondary school, more likely to exhibit problem behaviour in school, and more likely to have poorer health (Government of Canada, 2002; Statistics Canada, 2005). It is unclear whether these findings hold true for First Nations children living in First Nations communities.

Having a high number of household members also has its drawbacks. Crowded housing [defined as more than one household member per habitable room] is largely a result of the well-documented housing shortage among First Nation communities. Rates of crowding are 6 times higher than that observed among non-

Aboriginal communities (Indian and Northern Affairs Canada [INAC], 2011, section 4.1.1). Crowded housing conditions can be a great source of stress and ill health (Public Health Agency of Canada [PHAC], 2003). For example, crowded housing conditions have been linked with injuries, transmission of infectious disease, mental health problems, family tension, and violence (Garzon, 2005; Health Canada, 1999; PHAC, 2003).

Parents' levels of education have a well-documented effect on the future education and economic success of their children. Children of parents with higher education were more likely to attend university than those whose parents had achieved a lower level of education (INAC, n.d.). In turn, higher education typically translates into greater participation in the labour force and higher incomes, which have been related to better mental and physical health (Milan, Vézina, & Wells, n.d.). Further, parental levels of education have been found to be a better predictor of a child's future educational achievement than income. With respect to First Nations, levels of educational achievement have continued to lag behind those of adults in the general Canadian population (Government of Canada, 2002). However, while there remains a divide, levels of educational achievement among First Nation adults have been increasing (Hull, 2005) – suggesting positive consequences for First Nations children.

Household income has also been identified as a key indicator of immediate and future health for children. Lower household income to the point of poverty is linked with cognitive and social-emotional deficits, increased prevalence of health conditions [malnutrition and type 2 diabetes are of particular concern], have higher rates of death due to unintentional injury, and risk of later addiction, mental health difficulties, physical disabilities, and premature death as adults (Aber, Bennett, Conley, & Li, 1997; Canadian Paediatric Society, 2007; Statistics Canada, 2005).

The current chapter explores the following dimensions of household environment of First Nations children: household structure and composition, household income, parental education, and child care arrangements.

METHODS

The RHS 2008/10 included various questions relating to housing and living conditions.

Relation to household members

The child's parent or guardian was asked to indicate who the child lives with most of the time: options were recoded into: "biological mother and father", "biological mother

and biological father (no other adults)”, “biological mother (no biological father)”, “biological mother (no other adults)”, “biological father (no biological mother)”, “biological father (no other adults)”, “grandparent(s)”, “grandparent(s) (and no other adults)”, “aunt(s)/uncle(s)/cousin(s)”, “aunt(s)/uncle(s)/cousin(s) (no other adults)”

Household occupancy and over-crowding

To determine household occupancy, the child’s parent or guardian were asked to indicate how many children/youth (0 to 17 years) and adults (18 to 65+ years) live in the household at least half of the time. Number of rooms in the household was also asked (including kitchen, bedrooms, living rooms and finished basement rooms – excluding bathrooms, halls, laundry room and attached sheds; response options ranging from “0” to “13 or more”). The RHS overcrowding index is derived from CMHC guidelines (defined as more than one person per habitable room; Statistics Canada, 2009).

Household income

First Nations adults were asked about their total annual household income [14 income categories were provided: ranging from ‘income loss’/‘no income’ to ‘\$80000/year and over’].

Highest level of parental education

Respondents were asked to indicate the highest level of education achieved by the child’s mother/female guardian and the child’s father/male guardian. Responses were coded as: “less than high school education (some elementary school, elementary school, or some high school)”, “high school education”, “college diploma or certificate (from trade/vocational school, from community college or CEGEP, or a professional degree)”, and “university education (Bachelor’s, Master’s or Doctorate).”

Childcare Arrangements

The respondent was asked if the child is currently receiving childcare (response options: yes/no). Respondents who indicated the child is currently in childcare where then asked the child’s main childcare arrangement (may choose only one): “care in someone else’s home by a family member”, “care in child’s home by a family member”, “care in someone else’s home by a non-relative”, “care in child’s home by a non-relative”, “day care centre”, “nursery school/preschool”, “private home daycare”, or “before/after school program.” Finally respondents were asked how many hours per week the child spends in childcare (open-ended response).

In addition, current findings were compared with those of the earlier RHS 2002/03 (First Nations Information Governance Committee, 2005) and with data from the general Canadian population

RESULTS

Relation to Household Occupants

Almost half of all First Nations children (48.4%, 95% CI $[\pm 2.0]$) live with both of their biological parents most of the time (40.3%, 95% CI $[\pm 2.0]$) live with both biological parents and no other adults). Approximately forty percent of children (39.2%, 95% CI $[\pm 2.1]$) live with their biological mother but not their biological father (29.5%, 95% CI $[\pm 2.3]$) live with only their biological mothers and no other adults). On the other hand, only 3.1% (95% CI $[\pm 0.4]$) live with their biological father but not their biological mother (2.2%, 95% CI $[\pm 0.4]$) live with only their biological father and no other adults). A much higher percentage of First Nations children have grandparent(s) living in their household (15.4%, 95% CI $[\pm 1.6]$), compared to children in the general Canadian population (3.8%; Canadian Paediatric Society, 2009). Few First Nations children (4.3%, 95% CI $[\pm 0.9]$) lived only with grandparents and not other adults. Only 0.5% of children in the general Canadian population live with only their grandparents. Finally, 10.7% (95% CI $[\pm 1.5]$) of First Nations children share a household with aunts, uncles, or cousins (less than one percent of children live with only aunts, uncles or cousins).

Household Occupancy and Crowding

The RHS 2008/10 data indicate that First Nations households had an average of 5.7 (95% CI $[\pm 0.1]$) persons (a mean of 2.4 adults and 3.4 children and youth, 95% CIs $[\pm 0.1]$ and $[\pm 0.1]$). No significant difference was observed since RHS 2002/3. First Nations households with children had almost three times as many children as households in the general Canadian population—3.2 vs. 1.1 (Statistics Canada, 2007).

Crowding is defined as having more than one person per habitable room (Jackson & Roberts, 2001). The RHS 2008/10 demonstrated that 37.5% (95% CI $[\pm 2.5]$) of children were living in crowded homes, by this definition. This demonstrates an increase since the RHS 2002/3: 32.4% .

Income

Fewer than half of mothers/female guardians (42.9%, 95% CI $[\pm 2.3]$) and fathers /male guardians (45.7%,

95% CI [± 2.3]) were currently working for pay. Approximately 43% of First Nations children live in a household with an annual household income of less than \$20,000 (see Table 30.1). Among the general Canadian population, Statistics Canada (2011) estimates that the median income for two-parent families is \$75,880 and for lone-parent families is \$35,990. Comparatively, the median family household income was \$23,130 in 2008/10 and \$19,716 in RHS 2002/03.

Table 30.1. Percent of Households with Children by Household Income (n = 4,229)

Household income	Households with children % [95% CI]
\$9,999 or less	19.2 [± 2.1 %]
\$10,000–\$19,999	23.7 [± 2.1 %]
\$20,000–\$29,999	22.7 [± 1.9 %]
\$30,000–\$39,999	13.4 [± 2.0 %]
\$40,000–\$49,999	7.8 [± 1.2 %]
\$50,000+	13.1 [± 1.7 %]

Table 30.2. Parents’ Highest Level of Education Achieved

Highest level of schooling completed	Mothers’ education		Fathers’ education		
	RHS 2008/10 % [95% CI]	RHS 2002/03 %	RHS 2008/10 % 95% CI	RHS 2002/03 %	
Less than high school diploma	51.0 [± 2.9]	46.0	60.1 [± 2.5]	56.6	
High school diploma	24.7 [± 2.1]	24.4	20.8 [± 2.1]	20.3	
College diploma or certificate	18.5 [± 1.8]	24.5	16.0 [± 1.8]	20.4	
University degree (Bachelor’s, Master’s, or PhD, Professional Degree)	5.8 [1.0]	5.0	3.1 [± 0.6]	2.6	

Table 30.3. Parent’s Highest Level of Education, by Annual Household Income

Highest level of schooling completed	Under \$25,000		Over \$25,000	
	Mother %	Father %	Mother %	Father %
Less than high school diploma	63.2	71.6	33.4	44.8
High school diploma	22.5	17.0	23.3	24.2
College diploma or certificate	12.5	9.1	31.2	26.5
University degree (bachelor’s, master’s, PhD, Professional degree)	1.8	2.4	12.1	4.5

Parental Education

The following educational patterns for the parents of children should not be assumed to represent the highest lifetime educational attainment as many First Nation parents are young and may still be in school.

For children living in First Nations communities, a higher proportion of mothers/female guardians than fathers/male guardians have received a high school diploma (24.7% vs. 20.8%). In addition, a higher proportion of mothers/female guardians than fathers/male guardians have a bachelor’s degree or higher (5.8% vs. 3.1%, see Table 30.2).

Level of parental education did not differ significantly between RHS 2008/10 and RHS 2002/03. (see Table 30.2).

Lower educational achievement of parents or guardians was associated with lower household income. A higher proportion of children who live in a lower-income household (less than \$25,000/year) have parents/guardians who did not complete highschool compared to those who live in a higher income household (\$25,000 or more; see Table 30.3).

Child Care Arrangements

Child care is defined as children receiving care from someone other than their parent or guardian. Fewer than one-third (28.8%) of the children living in First Nations communities were reported to be receiving child care. This was a decrease from the results in RHS 2002/03, when 34.7% of children were reported to be receiving non-parental child care. In RHS 2008/10, children who are in child care spent a mean of 21.1 (95% CI [± 1.5]) hours per week in care. Children aged 0-5 years spend a mean of 23.8 hours (95% CI [± 1.4]) per week in childcare and children aged 6-11 years spend a mean of 15.8 hours (95% CI [± 3.6]) per week in childcare. Comparatively, children in the general Canadian population between the ages of six months and five years

spent on average 29.0 hours per week in care (Bushnik, 2006). In addition, 39.2% of First Nation children (from birth to 5 years of age) were in child care, compared to 54% of children in the general Canadian population (from 6 months to 5 years of age; Bushnik, 2006).

Of the First Nations children living in First Nations communities who received child care, a greater percent were cared for in home settings compared to formal daycare settings (58.0% vs. 39.2%). As was the case in RHS 2002/03, First Nations parents and guardians favoured home-based care either in their own homes or in another home. With respect to changes in type of childcare since 2002/03, a greater proportion of children received care in formal care settings (39.2% in 2008/10 vs. 31.3% in 2002/02), and a smaller proportion of children received care from a relative (53.8% in 2008/10 vs. 59.0% in 2002/03) The proportion of children receiving care from a relative was still higher than that observed among the general Canadian population (53.8% vs. 30.0%; Statistics Canada, 2006).

Table 30.4. Child Care Arrangements, RHS 2008/10 and RHS 2002/03

	RHS 2008/10 (n = 1,686) % [95% CI]	RHS 2002/03 %
Total children in care	28.8 [±2.2]	34.7
Child care arrangements		
Home settings		
Home settings	58.0	64.7
Child's home by relative	21.7 [±3.0]	21.0
Child's home by sibling	4.6 [±1.7]	9.1
Child's home by non-relative	1.7 [±0.9]	2.4
Other home by relative	27.5 [±3.3]	28.9
Other home by non-relative	2.5 [±1.1]	2.6
Formal settings		
Daycare centres, nursery school, pre school, private home daycare, or other	33.8	27.9
Before and after school programs	5.4 [±2.1]	5.4
Other	2.7	4.0

DISCUSSION AND CONCLUSIONS

The household environment in which we grow up is a determinant of future educational attainment, income level, mental health, and general well-being. The RHS provides data to support what First Nations communities

have known all along: that there is a great need for improvements in living conditions within many First Nation communities. Many disparities are noted between the living conditions of First Nations children and those of children in the general Canadian population.

However, areas of disparity (household income, level of parental education, and household crowding) are not immutable conditions. All of these factors can change. Problems should be addressed at a tri-partite (federal, provincial/territorial and First Nations) level. Combining enhanced support for culture, family, and community with strategic public policy can provide more favourable environments for children's development. Strategies must address parental education levels (falling far below national averages), continued economic development strategies, and safe and suitable housing. Improvements to each of these areas should help parents'/guardians and communities in providing a nurturing home environment which encourages healthy development among First Nations children.

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Chapter 31

Education and Language

EXECUTIVE SUMMARY

Child development research has shown that outcomes later on in life are linked to a child's early years. This chapter reports on varied learning experiences and outcomes for First Nations children from birth to 11 years of age living on-reserve or in northern communities, including language learning, culture, early childhood education, and formal schooling. The survey data show that First Nations primary caregivers highly value their connections to their child's traditional culture and language, and that First Nations children have many sources of support in both their families and their wider communities to help them understand their culture. Almost half of First Nations children can speak or understand a First Nations language, and a little over one-third of First Nations children in First Nations communities had attended an Aboriginal Head Start program. Their attendance was not significantly related to repeating or skipping a grade in elementary school; however, more First Nations children who had attended an Aboriginal Head Start program spoke or understood a First Nations language. Culturally appropriate support services should be expanded to ensure that the education system is meeting the needs of First Nations children.

KEY FINDINGS

- Almost half (49.7%) of all First Nations children were reported to be able to speak or understand a First Nations language.
- Having First Nations children learn a First Nations language and participate in cultural activities were highly valued by primary caregivers, with over 85% of primary caregivers reporting that these were important or very important for the child.
- First Nations children have many sources of support in their lives to help them understand their culture. Family members were the primary transmitters of culture for First Nations children, but community members such as elders, friends, and teachers also supported cultural understanding.
- Close to 20% of First Nations children aged 9 to 11 years have repeated a grade. According to data from the 2006–2007 National Longitudinal Survey of Children and Youth, at age 9, 3.6% of children in the general Canadian population have repeated a grade.
- A little over one-third of First Nations children had attended an Aboriginal Head Start program. First Nations children who had attended were more likely to speak or understand a First Nations language.

INTRODUCTION

This chapter focuses on the early period of the lifelong learning journey—learning among First Nations children. Past research on First Nations children’s learning has too often been conducted from a deficit perspective. Existing studies have tended to utilize Eurocentric frameworks and models of education, focusing on comparisons, based on non-Aboriginal standards, between First Nations people and the general Canadian population. These studies have often neglected First Nations’ beliefs about education and learning, overlooked the many strengths of First Nations knowledge, and ignored the varied sources and kinds of learning important to First Nations people. Research studies have also often failed to address the historical, political, and social contexts that have an impact on the learning experiences of First Nations children.

Fortunately, much work has been done by First Nations community members to reframe the conversation around First Nations education and learning. Notably, the Canadian Council on Learning’s Aboriginal Knowledge Learning Centre, led by Marie Battiste, has shifted the focus away from learning deficits and refocused attention on the learning spirit (Canadian Council on Learning, 2009).

A First Nations Perspective on Learning

Despite the large historical and cultural diversity among the First Nations of Canada, most First Nations peoples share a common understanding of learning as a holistic, lifelong process (Battiste, 2005). Learning, from a First Nations perspective, involves both formal and informal opportunities and is fundamentally connected to land, language, and culture. Language is foundational to learning, as language shapes the way we come to know and see the world. In the words of Marie Battiste, “Aboriginal languages are the basic media for the transmission and survival of Aboriginal consciousness, cultures, literatures, histories, religions, political institutions, and values. . . . Where Aboriginal knowledge survives, it is transmitted through Aboriginal language” (Battiste, 2000, p. 199). Thus, the preservation of First Nations languages is vital to learning and to ensuring the continuation of traditional knowledge.

Family and community are key sources of learning for First Nations children. As the Canadian Council on Learning (2007, p. 80) has noted, “the home is a child’s first classroom; parents and other family members are a child’s first teachers.” Experiential learning within the home and community is valued as a central way of gaining knowledge.

Formal education systems are recognized as important

sites of learning, but they are also sites of conflict for many First Nations people as they often privilege Western ways of knowing and are typically based in Eurocentric models of learning. The Canadian education system has historically failed to meet the needs of First Nations students and has been a source of lasting colonial trauma as inflicted through residential schools (Royal Commission on Aboriginal Peoples, 1996). In spite of this, First Nations peoples value formal education as a means of learning and for its potential to improve both individual and community socio-economic circumstances (Battiste & Smith, 2005; Schissel & Wotherspoon, 2003).

In an attempt to make schools spaces where First Nations children and youth can develop a positive sense of self, holistic approaches to education, grounded in First Nations’ worldviews and experiences, are being revitalized (National Collaborating Centre for Aboriginal Health, 2009). Control over education is central to this process. The need for First Nations control of First Nations education has long been espoused by the Assembly of First Nations and has been affirmed in Article 14 of the United Nations Declaration on the Rights of Indigenous Peoples, which states that “Indigenous peoples have the right to establish and control their educational systems and institutions providing education in their own languages, in a manner appropriate to their cultural methods of teaching and learning” (UN General Assembly, 2007).

Linking Learning and Well-being

A First Nations perspective also recognizes that learning is integrally linked to health and well-being. This view is based on the understanding that well-being involves the total health of the total person within the total environment (Dumont, 2005). The importance of learning, in its holistic form, to well-being has been well documented in the literature. Knowledge of traditional language and culture can contribute to well-being by promoting a positive self-identity and by enabling greater access to traditional healing ceremonies (McIvor, Napoleon, & Dickie, 2009). In a study of youth suicide, it was found that cultural continuity, a measure of the preservation of cultural heritage, acts as a protective factor for youth (Chandler & Lalonde, 1998).

Formal education has also been linked to health status. Individuals with higher levels of educational attainment tend to have greater job security and better access to healthy environments, and they are better able to decipher and utilize health literacy, all of which contributes to

greater well-being (Loppie Reading & Wien, 2009). For youth, connectedness to school has been shown to be associated with positive physical and emotional health (Cummins, Ireland, Resnick, & Blum, 1999).

Guided by a First Nations perspective on learning, this chapter reports on a number of aspects of children's learning journeys, including participation in Aboriginal Head Start, language knowledge, school experiences, and participation in cultural activities. Where possible, data from RHS 2002/03 (First Nations Information Governance Committee, 2005) are included to give a sense of changes in these indicators over time.

METHODS

Results examined in this chapter relate to the full range of children's learning experiences. Key variables examined include measures of First Nations children's ability to speak and understand a First Nations language, participation in cultural activities, the importance primary caregivers place on First Nations children's language knowledge and participation in cultural activities, sources of support for understanding culture, and time spent reading outside of school. Indicators related to formal school experiences are also included, such as measures of attendance in an Aboriginal Head Start program, and the percentage of First Nations children repeating or skipping a grade.

Both groups of results are contextualized using descriptive variables available in the data set, such as parental income; parental level of education; First Nations children's age; gender; community size; and urban, rural, or remote community status. Results from RHS 2002/03 and other national Canadian surveys are included where appropriate. Results reported are significant using 95% confidence intervals, unless otherwise noted

RESULTS

Language and Culture

Learning a First Nations language was highly valued by primary caregivers, with 64.1% (95% CI $[\pm 2.2]$) stating that it was very important for their First Nations child to learn a First Nations language, and 28.4% (95% CI $[\pm 2.1]$) stating that it was somewhat important. This was roughly the same as the findings reported in RHS 2002/03, when 64.3% of First Nations caregivers said it was very important, and 28.6% said it was somewhat important, but much higher than reported for off-reserve First Nations children in the 2006 Aboriginal Peoples Survey, in which 69% of respondents stated that it was

very or somewhat important for their child to learn an Aboriginal language (Statistics Canada, 2010).

First Nations children's current knowledge of First Nations languages was also reported. Almost half (49.7%, 95% CI $[\pm 2.2]$) of all primary caregivers reported that their First Nations child could speak or understand a First Nations language, and one-quarter (25.0%, 95% CI $[\pm 1.8]$) reported that their First Nations child used their First Nations language in daily life. Of those who reported that they could speak or understand one or more First Nations languages, 14.2% of children aged 3 to 11 could do so at an intermediate or fluent level, while 85.8% could speak or understand a few words at a basic level. While not directly comparable due to age and question differences, according to the 2006 Aboriginal People's Survey, about 17% of children aged 6 to 14 years could speak *and* understand a First Nations language, and about 32% were able to understand only (Bougie, 2009). Results from RHS 2002/03 showed that 25.2% of children aged 3 to 11 years could understand and 19.3% could speak a First Nations language fluently or relatively well.

A number of factors were found to be related to First Nations children's ability to speak or understand a First Nations language. More children in urban and large communities (over 1,500 people) were reported to be able to speak or understand a First Nations language than those in rural and small communities. Language knowledge for First Nations children in remote or special access communities was not significantly higher than that of urban First Nations children. A higher proportion of primary caregivers in remote or special access communities reported that it was very important for their First Nations child to learn a First Nations language, compared to those in urban communities (77.4% vs. 63.9% respectively). Parental level of education also appeared to be associated with language knowledge, as more First Nations children who had at least one parent with a university degree or higher spoke or understood a First Nations language than First Nations children of parents with less than high school, high school or college.

Table 31.1. Percentage of First Nations Children Able to Speak or Understand a First Nations Language, by Demographic Factors

	%	95% CI
Community type		
Urban	50.2	[±4.4]
Rural	46.5	[±3.3]
Remote or special access	58.2	[±6.2]
Community population size		
Small (75–300)	39.3	[±6.8]
Medium (301–1,500)	49.6	[±3.3]
Large (over 1,500)	51.3	[±3.3]
Parent’s highest level of education		
Less than high school	47.8	[±3.3]
High school	47.7	[±4.4]
College diploma or certificate	52.0	[±4.4]
Bachelor’s, graduate, or professional degree	62.4	[±6.0]

Table 31.2. Percentage of First Nations Caregivers who Reported that Learning a First Nations Language was Very Important for their First Nations Child, by Community Remoteness (n = 5,749)

Community Type	%	95% CI
Urban	63.9	[±4.4]
Rural	59.8	[±3.3]
Remote or special access	77.4	[±4.0]

Traditional cultural events were also highly valued in the lives of First Nations children. Slightly over half (53.6%, 95% CI [±2.5]) of the primary caregivers felt that traditional cultural events were very important, while an additional 33.5% (95% CI [±2.2]) felt that they were somewhat important. In spite of the importance placed on traditional cultural events, the majority (69.1%) of all First Nations children were reported to have never participated in traditional singing, drumming, or dancing groups or lessons outside of school hours. The survey did not ask primary caregivers about their First Nations children’s participation in other types of cultural activities or events. There was an increase in the importance placed on traditional cultural events in this survey; 53.6% of First Nations caregivers in RHS 2008/10 said traditional cultural events are very important, compared to 44.5% in RHS 2002/03.

Table 31.3. Percentage of First Nations Children’s Primary Caregivers Reporting on the Importance of Traditional Cultural Events in the Life of First Nations Children (n = 5,755)

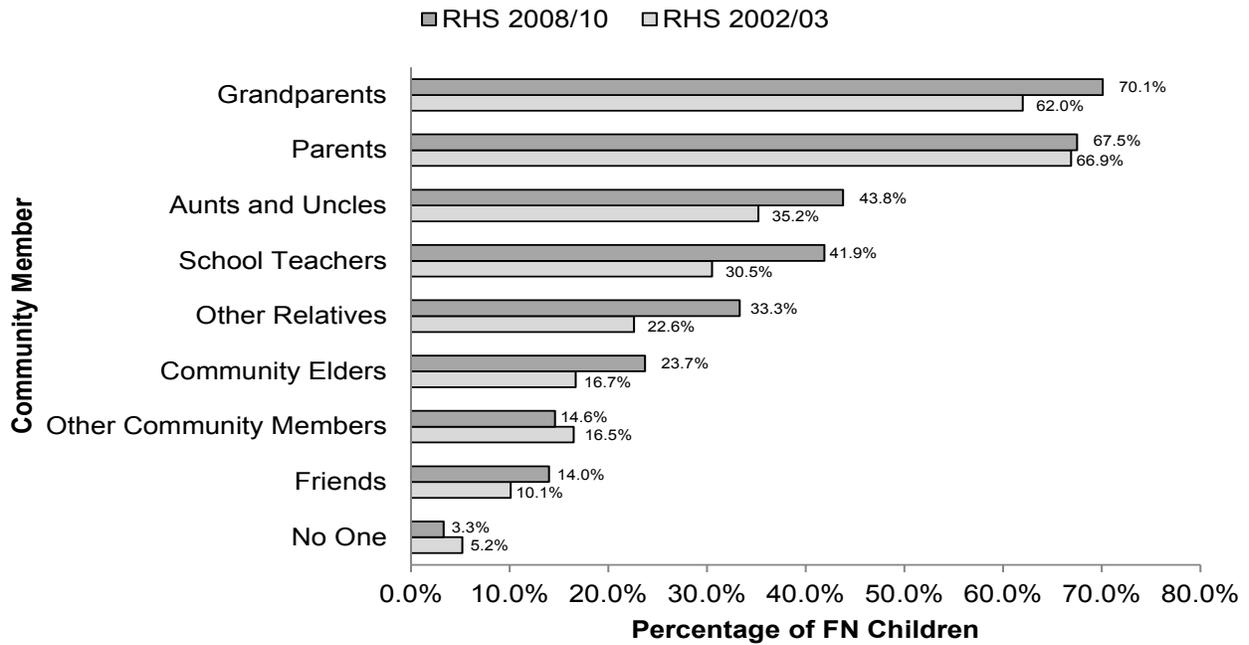
Importance	%	95% CI
Very important	53.6	[±2.5]
Somewhat important	33.5	[±2.2]
Not very important	8.3	[±1.2]
Not important	4.6	[±1.0]

Table 31.4. Percentage of First Nations Children Taking Part in Traditional Singing, Drumming, or Dancing Groups or Lessons Outside of School Hours (n = 4,968)

Frequency	%	95% CI
Never	69.1	[±2.3]
Less than once per week	17.4	[±1.5]
1–3 times per week	9.6	[±1.2]
4 or more times per week	3.9	[±0.9]

First Nations children have many sources of support for understanding their First Nations culture. Grandparents (70.1%) and parents (67.5%) were the most often cited sources of support, followed by aunts and uncles (43.8%). Schoolteachers (41.9%) were also involved in helping First Nations children to understand their culture (95% CIs [±1.6], [±2.1], [±2.3], and [±2.5], respectively). Grandparents, aunts and uncles, teachers, other relatives, and community elders were selected more often in RHS 2008/10 than in RHS 2002/03 to be involved in helping First Nations children understand their culture.

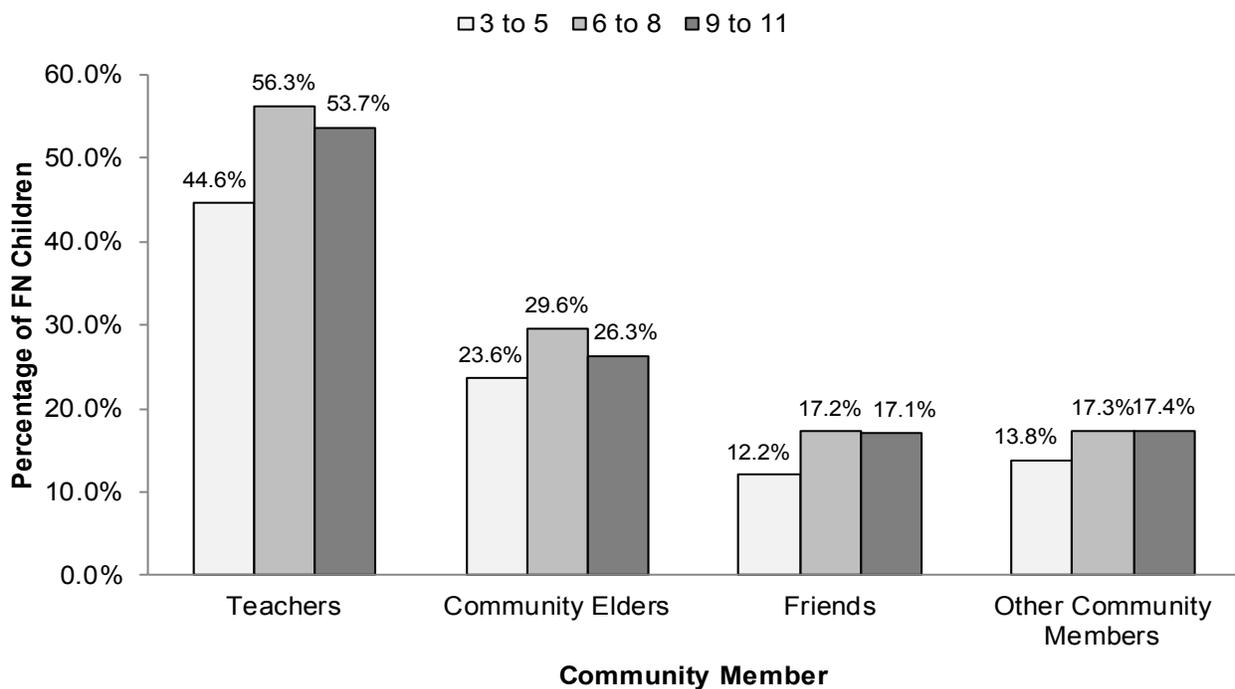
Figure 31.1. People Involved in Helping First Nations Children Understand their Culture, as Cited by Primary Caregivers



While family sources of support did not significantly vary by age, First Nations children’s cultural support network in the community increased slightly with age.

The greatest differences were related to schoolteachers and community elders being a source of support more often after children reached the age of six.

Figure 31.2. Community Members Involved in Helping Children Understand their Culture, by Age of First Nations Children, as Cited by Primary Caregivers (n = 5,869)



Parents' participation in the cultural education of their First Nations children increased with higher levels of formal educational attainment. The majority (83.7%, 95% CI [± 4.0]) of parents with a bachelor's, graduate, or professional degree reported they were involved in helping their First Nations children understand their culture, compared to 62.7% (95% CI [± 3.2]) of parents with less than a high school diploma. Higher levels of income also contributed to increased parental participation, as more parents with an annual income of \$25,000 or more reported being involved in their First Nations children's cultural education than parents with an annual income of under \$25,000. However, annual income of over \$60,000 did not significantly increase the proportion of parental involvement, compared to the \$25,000 to \$59,999 income category (see Table 31.5).

Table 31.5. Percentage of First Nations Children whose Parents Helped them Understand their Culture, by Parental Education and Income

	%	95% CI
Parents' level of education		
Less than high school	62.7	[± 3.2]
High school	69.9	[± 3.3]
College diploma or certificate	72.4	[± 3.3]
Bachelor's, graduate, or professional degree	83.7	[± 4.0]
Parents' annual income ($n = 5,877$)		
Under \$25,000	63.4	[± 3.6]
\$25,000–\$59,999	73.1	[± 3.0]
\$60,000 or over	71.8	[± 7.6]

Confirming the interconnectedness of language and culture, a higher proportion of First Nations children who participated in traditional singing, drumming, or dancing more often spoke or understood a First Nations language (see Table 31.6).

Table 31.6. Percentage of First Nations Children who Speak or Understand a First Nations Language, by their Participation in Traditional Singing, Drumming, or Dancing ($n = 5,623$)

Frequency of participation in traditional singing, drumming, dancing	% who speak or understand First Nations language	95% CI
Never	46.0	[± 2.6]
Less than once per week	60.1	[± 5.0]
1–3 times per week	61.4	[± 8.4]
4 or more times per week	69.7	[± 9.4]

Aboriginal Head Start, Formal Schooling, and Reading

Aboriginal Head Start is a culturally focused early childhood education program that is centered on the spiritual, emotional, intellectual, and physical growth of First Nations children. The aim is to foster a desire for lifelong learning in the child and to involve parents and community members in all aspects of the program, recognizing that they are the primary teachers and caregivers in children's lives (Greenwood, 2006). First Nations children's participation in culturally focused early childhood education, such as Aboriginal Head Start, has been linked to pro-social behaviours, even after controlling for socio-demographic variables (Findlay & Kohen, 2010).

According to RHS 2008/10, a little over one-third (36.4%, 95% CI [± 3.2]) of all First Nations children had attended an Aboriginal Head Start program. While attending an Aboriginal Head Start program was not associated with whether a First Nations child had ever repeated a grade, the data showed that more First Nations children who had attended an Aboriginal Head Start program were able to speak or understand a First Nations language than those who had not attended (55.8% vs. 45.6%, 95% CIs [± 3.9] and [± 2.7]). First Nations children who do not live in First Nations communities appear to be much less likely to attend an Aboriginal-specific preschool program, with only 17% of respondents in the 2006 Aboriginal Peoples Survey reporting attendance (Bougie, 2006).

Virtually all (99.2%, 95% CI [± 0.3]) First Nations children aged 6 to 11 years living in First Nations communities were reported to be currently attending elementary school. The only indicator of school performance included in RHS 2008/10 was a measure of whether a First Nations child had ever repeated or skipped a grade. The data showed that a higher percentage of First Nations children aged 6 to 11 years repeated a grade than skipped a grade (13.7% vs. 3.1%, 95% CIs [± 1.8] and [± 1.2], respectively). Further, the percentage of First Nations children who had repeated a grade increased significantly at higher age levels, with 19.7% (95% CI [± 4.0]) of First Nations children aged 9 to 11 years having repeated a grade. First Nations boys aged 6 to 11 years had repeated a grade significantly more often than girls of the same age (16.1% vs. 11.4%, 95% CIs [± 2.4] and [± 2.6], respectively). However, repeating or skipping a grade

did not vary significantly by parental income or by the relative isolation of the First Nations child’s community.

The figures reported here are lower than the percentages of grade repetition found in RHS 2002/03, in which 18.0% of First Nations children aged 6 to 11 years were reported to have repeated a grade. While the percentage of First Nations children repeating a grade was lower in RHS 2008/10 than it was in RHS 2002/03, it is significantly higher than the proportion of grade repetition among children in the general Canadian population. According to data from the 2006–2007 National Longitudinal Survey of Children and Youth, at age 9, 3.6% of children had repeated a grade (Thomas, 2009).

Table 31.7. Percentage of First Nations Children who Repeated or Skipped a Grade, by Age

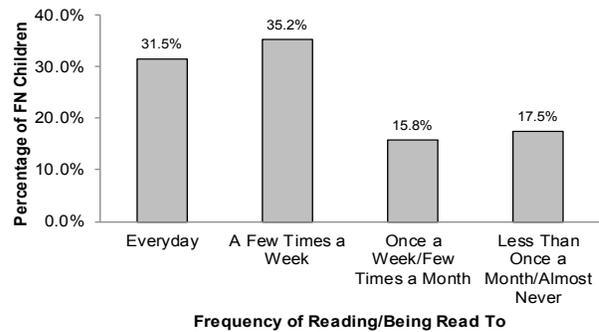
Age	% of children who repeated a grade	95% CI	% of children who skipped or advanced a grade	95% CI
All	13.7	[±1.8]	3.1	[±1.2]
6–8	9.0	[±1.8]	2.2	[±0.8]
9–11	17.9	[±3.2]	3.9	[±2.3]

Only 2.6% of First Nations primary caregivers reported they had been told that their First Nations child had a learning disability, and 2.0% had been told that their First Nations child had attention deficit disorder/attention deficit hyperactivity disorder (ADD/ADHD), 95% CIs [±0.7] and [±0.5], respectively. The prevalence of learning disabilities among First Nations children comparable to that for children in the general Canadian population, where 3.2% of school-aged children are estimated to have a learning disability (Statistics Canada, 2007). Rates of ADHD in the general population have been hard to determine, but a 2002 study reported that estimates of the prevalence of ADHD in school-age children in Canada generally range from 5% to 10% (Romano, Baillargeon, & Tremblay, 2002).

A number of studies have shown that reading activities in the home can have a significant impact on children’s literacy skills (Bus, van IJzendoorn, & Pellegrini, 1995; Lipps & Yiptong-Avila, 1999). Recognizing the importance of reading outside of school, in RHS 2008/10 caregivers were asked how often their First Nations child read or was read to for fun. Approximately one-third (31.5%) of First Nations children read or were read to every day, and an additional one-third (35.2%) read or were read to a few times a week.

However, close to one in five children (17.5%) read or were read to less than once a month or almost never (95% CIs [±1.9], [±1.8], and [±1.6], respectively).

Figure 31.3. Frequency of Reading or Being Read To for Fun (n = 5,719)



While formal measures of First Nations children’s reading skills were not included in RHS 2008/10, a significantly higher proportion of First Nations children who were reported to have read or were read to every day or a few times a week spoke or understood a First Nations language (52.9% and 51.7%, respectively) than First Nations children who were reported to almost never read or be read to (40.8%).

Table 31.8. Percentage of First Nations Children who can Speak or Understand a First Nations Language, by Frequency of Reading or Being Read To (n = 5,545)

Frequency of reading	% who speak or understand a First Nations language	95% CI
Every day	52.9	[±3.6]
A few times a week	51.7	[±3.5]
Once a week or a few times a month	51.3	[±4.5]
Less than once a month or almost never	40.8	[±4.2]

DISCUSSION

In spite of the forces of colonization and concerted efforts to extinguish First Nations cultures and languages, many First Nations communities have managed to maintain their traditional languages and teachings. The continued existence of these languages is vital to First Nations cultures, identities, and knowledge. Currently, many First Nations languages are threatened, and the First Nations children of today will be relied upon for their preservation (Norris, 2004). As Shuswap elder Mary Thomas has said, “The values of our people have ensured our existence. It is to the children that these

values are passed. The children are our future and our survival” (Public Health Agency of Canada, n.d.).

First Nations languages were spoken or understood by roughly half of the First Nations children included in this survey. Of the children whose caregivers reported they could speak one or more First Nations languages, 11.6% could do so at an intermediate or fluent level, while 88.4% could speak a few words or at a basic level. Additionally, one in four First Nations children were reported to speak a First Nations language in their daily life. First Nations children living in urban and larger communities spoke or understood a First Nations language more often than those in smaller and more isolated communities. Given the connection between language learning, the development of a positive self-identity, school achievement, and health (McIvor et al., 2009), greater efforts should be made to ensure that all First Nations children have the opportunity to learn their First Nations language. The importance primary caregivers placed on First Nations children’s knowledge of a First Nations language suggests that they may be quite receptive to language programs for children or greater integration of language learning in schools.

First Nations children’s participation in traditional cultural events was also highly valued by primary caregivers. However, only about one in four First Nations children participated in traditional singing, drumming, or dancing groups or lessons outside of school. This certainly does not capture the full range of cultural activities and events in which First Nations children participate. However, the measure did highlight the connection between language and culture, showing that First Nations children who participated in these activities also spoke or understood a First Nations language more often. It may be useful to gather more information about the varied cultural activities and events in which First Nations children are involved, as well as barriers that may prevent First Nations children from participating in cultural activities or learning their language.

While many First Nations children are immersed in Western culture, the importance primary caregivers placed on First Nations children’s knowledge of cultural activities and language suggests that there is a strong potential for First Nations children to maintain their connection with the traditional cultures and languages of their First Nations. First Nations children also have many sources of support both within their families and within the wider community to help them grow and develop a strong cultural identity. While family members were most often reported as sources of support for First Nations children’s cultural understanding, many First

Nations children also received support from community members such as elders, teachers, and friends. This is important because families and communities both play a critical role in language and culture transmission (Norris, 2004). Encouragingly, 96.7% of First Nations children were reported to have at least one source of support for understanding their culture.

CONCLUSIONS

Culturally focused early childhood education programs such as Aboriginal Head Start can also support First Nations children’s cultural learning. Findings here suggest that First Nations children who have attended an Aboriginal Head Start program are more likely to be able to speak or understand a First Nations language. While this is not necessarily a causal relationship, language and culture are central to Aboriginal Head Start programs, and an evaluation of Aboriginal Head Start in urban and northern communities found that most Aboriginal Head Start centres use at least one Aboriginal language as a primary language of instruction (Health Canada, 2000).

These findings suggest that Aboriginal Head Start programs should be expanded and made available to more First Nations children living in First Nations communities. Evaluative information on the effectiveness of Aboriginal Head Start programs may help to convince funding agencies to support program expansion. The need for greater early childhood learning supports is evident in the finding that almost one in five First Nations children aged 9 to 11 years living on-reserve or in northern communities had repeated a grade. This high percentage also suggests that more must be done within elementary schools to support students. Culturally appropriate support services should be expanded to ensure that the education system is meeting the needs of First Nations children.

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Chapter 32

Physical Activity and Nutrition

EXECUTIVE SUMMARY

There is increasing evidence to suggest a decline in the health of Canadian children over time—a trend that may largely be explained by a decrease in physical activity and a change in nutritional habits. This chapter utilizes data from the First Nations Regional Health Survey (RHS) 2008/10 to provide a snapshot of current physical activity and nutrition patterns of First Nations children living on-reserve and in northern communities. The findings from RHS 2008/10 reveal that a sizeable proportion of First Nations children were considered overweight or obese. Over half of First Nations children were categorized as being physically active and (‘almost always to always’) eating a nutritious/balanced diet. The importance of physical activity and nutrition are highlighted as they are associated with a host of positive factors, both physical and psychosocial. A strategy for healthy living that incorporates and harmonizes physical activity and nutrition may aid in the development of interventions to assist First Nations children to achieve and maintain a healthy lifestyle.

KEY FINDINGS

- 37.5% of First Nations children (aged 2 to 11) living in First Nations communities were of normal weight or were underweight, 20.3% were overweight, and 42.2% were obese.
- 17.9% of First Nations children (aged 6 to 11) were considered inactive, 20.2% were considered moderately active, and 61.9% were considered active.
- Walking was the most frequently reported physical activity among First Nations children (during the year prior to the survey; 81.4%), followed by swimming (54.9%), running or jogging (51.6%), bicycle riding or mountain biking (48.3%), berry picking or other food gathering (31.5%), dancing, such as aerobic, traditional, or modern (28.7%), and skating (25.6%).
- During the average day, more than one-third (37%) of First Nations children spent more than 1.5 hours watching television, 8.3% spent more than 1.5 hours on the computer, and 20.6% spent more than 1.5 hours playing video games.
- In the 12 months prior to the survey, more than half (58.6%) of First Nations children ‘always or almost always’ ate a nutritious balanced diet, while 36.4% only ‘sometimes’ ate a nutritious, balanced diet.
- Being active was positively associated with consuming berries and other vegetation, sharing traditional foods, and participating in sports teams or lessons, and participating in traditional singing, drumming, and dancing.
- Always or almost always eating a balanced, nutritious diet was positively associated with ‘excellent’ health; participating in sports teams or lessons, traditional drumming, singing, or dancing; sharing traditional food; consuming vegetables and fruits; consuming certain traditional foods; and getting along well with one’s family. Eating a nutritious, balanced diet was negatively association with consuming soft drinks or fast food; and consuming sweets.

INTRODUCTION

A growing body of literature shows a decline in the health of Canadian children over time (Active Healthy Kids Canada, 2010; Tremblay et al., 2010). This trend towards a decline in health may largely be explained by a decrease in physical fitness and changes in nutritional habits. The health benefits of physical activity have been well documented. Regular physical activity is recognized for its role in preventing several chronic and physical conditions, including coronary heart disease, hypertension, obesity, type 2 diabetes, osteoporosis, certain site-specific cancers such as colon cancer, and functional limitation with aging (Janssen & LeBlanc, 2010; Tremblay et al., 2010; U.S. Department of Health and Human Services, 1996). Specifically, in children, physical activity has been shown to promote healthy growth and development and to increase self-esteem and perceived physical competence (Janssen & LeBlanc, 2010). Additionally, physical activity is increasingly being recognized as an effective tool in combating obesity.

Published results from the 2004 Canadian Community Health Survey (CCHS) and other studies show a marked increase in the prevalence of obese and overweight children (Shields, 2004; World Health Organization [WHO], n.d.a). For instance, 15% of children and youth aged 2 to 17 years were reportedly overweight or obese in 1978–79, compared to 26% in 2004 (Shields, 2004). Risk of health conditions varies by gender, age, income, education, and ethnicity. For example, data reveal that Canadians of Aboriginal descent have consistently higher rates of obesity than do people in the general Canadian population (Hanley, 2000; Tjepkema, 2002). This is of particular concern given that pediatric obesity is associated with chronic health problems, including type 2 diabetes. Recently, the Canadian Society for Exercise Physiology developed guidelines to increase the activity levels of children and youth (Tremblay et al., 2011). According to these guidelines, children aged 5 to 11 years should accumulate at least 60 minutes of moderate-to-vigorous physical activity daily (Tremblay et al., 2011). More specifically, children should engage in vigorous activities, including strengthening activities, at least three days per week (Tremblay et al., 2011).

Despite the known benefits of regular activity and the existence of recommendations, research has shown that Canadian children still do not participate in enough daily physical activity to achieve optimal health. According to the Canadian Physical Activity Levels Among Youth (CANPLAY) study, which measures physical activity levels of children and youth using pedometers, in 2007–

09 only 15% of children aged 5 to 10 years accumulated enough steps to reap health benefits (Canadian Fitness and Lifestyle Research Institute [CFLRI], 2009). Moreover, the findings from this study show that physical activity levels vary depending on gender, age, and household income (CFLRI, 2009). Similarly, results from the Canadian Health Measures Survey (CMHS), which used accelerometers to collect time-sequenced data on physical activity behaviours, show that a mere 7% of children and youth accumulate 60 minutes of moderate-to-vigorous physical activity daily (Colley et al., 2011). The low rates of physical activity coupled with the rising rates of obesity among Canadian children, particularly among First Nations children, are of concern given that activity behaviours established in childhood have been shown to persist into adulthood. Thus, encouraging regular physical activity during childhood may increase the likelihood of maintaining an active lifestyle throughout adulthood, as well as greatly reduce the risk of developing certain chronic conditions.

Proper diet and nutrition are important components for consideration. Although consistent data for First Nations children's nutrition is fairly limited, a study of dietary habits explored nutrition among children in Canada (Garriguet, 2006). This study found that seven out of 10 children do not meet the minimum of five servings of fruits and vegetables a day; more than one-third of children do not have the minimum recommended servings of milk products; a quarter do not eat the recommended daily minimum of grain products; and roughly one-quarter had eaten food prepared in a fast-food outlet on the day prior to the survey (Garriguet, 2006).

This chapter describes physical activity and nutrition among First Nations children living in First Nations communities. These factors are also explored with a broader cultural framework, including individual spiritual, emotional, mental, and physical well-being; family connectedness; community connectedness; the relationship to the environment; and the culture's beliefs, values, and practices.

This type of framework is similar to a multi-faceted population health or ecological approach, which is commonly used when examining health issues. This approach takes into account individual factors (e.g., attitudes and beliefs), social factors (e.g., social support), environmental factors (e.g., physical environment and geography), societal factors (e.g., culture and community), and policy-related factors (e.g., band and government). Taken together, these factors impact behaviour. Finally, this chapter suggests

recommendations that may help guide decision makers in First Nations communities, policy-makers, and help to shape national strategies for healthy living..

METHODS

The measures used in the analyses of this chapter that have been calculated or derived are summarized below.

Physical Activity. Level of physical activity was based on total energy expenditure (EE), calculated using the following formula:

$$EE = \sum(N_i * D_i * MET_i / 365 \text{ days})$$

N_i = number of occasions of activity i in a year.

D_i = average duration in hours of activity i , and

MET_i = a constant value for the metabolic energy cost of activity i .

Frequency and duration of physical activities were reported for the 12 months prior to the survey, and the metabolic equivalent value (MET value) of each activity was independently established (Ainsworth et al., 2000). For this analysis, First Nations children with energy expenditures of less than 1.5 kcal/kg/day were considered to be inactive; those with energy expenditures between 1.5 kcal/kg/day and 2.9 kcal/kg/day were considered to be moderately active; and those with energy expenditures of 3 kcal/kg/day or greater were considered to be active.

Note: Physical activity scores are calculated only for those 6 years of age and older ($n = 3065$). Thus, any associations between physical activity and other variables will be representative of those children 6 years of age and up.

Nutrition. Parents/guardians' were asked how frequently their child eats a balanced, nutritious diet. Responses were categorized into: 'almost always to always', 'sometimes', 'rarely to never'.

Covariates

Household income was categorized into 4 categories: 'income loss/no income/less than \$15000/year', '\$15000 to \$24999', '\$25000 to \$49999', and '\$50000 and over'.

Highest level of parental education was categorized into 3 categories: 'less than high-school education', 'high-school education', and 'greater than high-school education'.

Sedentary behaviour was assessed by asking parent's/guardian's how much time on an average day their child spends watching TV, reading, working at a computer, and playing video games (less 0.5 hours, 0.5 to 1.0 hour, 1.0

to 1.5 hours, and more than 1.5 hours). Time spent in activities was averaged and categorized into quartiles.

Body mass index (BMI) was calculated using the following formula:

$$BMI = \frac{\text{Weight (kg)}}{\text{Height (m)}^2}$$

For this analysis, BMI was classified according to age- and sex-specific international standards of child overweight and obese categories. Children 2+ years were categorized into 3 groups: 'normal or underweight', 'overweight' and 'obese'.

Parents/Guardians were asked how often their child ate various traditional foods [land-based animals (moose, caribou, bear, deer, bison, etc.), fresh water fish, salt water fish, other water based foods (shellfish, eels, clams, seaweed, etc.), sea-based animals (whale, seal, etc.), game birds (goose, duck, etc.), small game (rabbit, muskrat), berries or other wild vegetation, bannok/fry bread, wild rice, corn soup) in the past 12 months. Responses options were: 'not at all', 'a few times', 'often'. In addition, parents/guardians were asked how often, in the past 12 months, did someone share traditional foods with the child's household. Response options were: 'often', 'sometimes', or 'never'.

Parents/Guardians were asked how often their child consumed various food/drinks [milk and milk products (e.g., yogurt, cheese), protein (beef, chicken, pork, fish, eggs, beans, tofu), vegetables, fruit (excluding fruit juice), bread/pasta/rice/other grains, water, juice, soft drinks/pop, fast food (e.g., burgers, pizza, hotdogs, french fries), sweets (e.g., candy, cookies, cake). Response options were: 'several times a day', 'once a day', 'a few times a week', 'about once a week', and 'never/hardly ever'.

Parents/Guardians were asked how often their child participated in various extracurricular activities (sport teams or lessons, music groups or lessons, and traditional singing, drumming, or dancing groups or lessons). Response options were: '4 times or more per week', '1-3 times per week', 'less than once per week', or 'never'.

Differences between estimates were tested for statistical significance, which was established at $p < 0.05$.

RESULTS

Body mass index. In RHS 2008/10, 37.5% of First Nations children (aged 2 to 11) were reported to be of normal weight or underweight, 20.3% were

overweight, and 42.2% were obese. In RHS 2002/03, for comparison, 41.5% of First Nations children (aged 2 to 11) were reported to be of normal weight or underweight, 22.3% were overweight, and 36.2% were obese. The prevalence of obesity did not differ by gender, although they did decline with increasing age.

Given the high prevalence of obesity among First Nations children, collecting data on modifiable and potential protective factors, including physical activity and diet is important.

Physical activity. Less than one-fifth (17.9%) of First Nations children (aged 6 to 11) were inactive, while 20.2% were moderately active, and 61.9% were active. No gender differences were observed in activity levels. Results revealed a higher percentage of older children were active (9 to 11 years; 65.9%) compared to younger children (6 to 8 years; 57.5%).

There was no significant association between physical activity and household income or between physical activity and parental level of education

Type of physical activity. Walking was the most frequently reported physical activity (81.4%). This was followed by swimming (54.9%); running or jogging (51.6%); bicycle riding or mountain biking (48.3%); berry picking or other food gathering (31.5%); dancing, including aerobic, traditional, and modern dancing, (28.7%); and skating (25.6%). Fewer than one-quarter of First Nations children reported participating in competitive or team sports such as hockey, basketball, baseball, lacrosse, and tennis (23.2%); fishing (21.3%); or gardening/yard work (17.8%) in 12 months prior to the survey. Fewer than one in eight First Nations children participated in bowling (11.8%), hiking (11.6%), hunting or trapping (8.9%), skiing or snowboarding (7.2%), golf (6.8%), using weights or exercise equipment (4.7%), canoeing or kayaking (3.4%), aerobics or fitness classes (3.2%), snowshoeing (2.6%), or martial arts (2.4%) in 12 months prior to the survey. With a few exceptions (i.e., snowshoeing, golfing, bowling, and skiing or snowboarding), fewer First Nations children appeared to participate in activities compared to findings from the earlier RHS 2002/03 (First Nations Information Governance Committee, 2005).

Table 32.1 summarizes the gender differences associated with participating in certain physical activities and sports. In RHS 2008/10, more boys than girls were reported to have participated in competitive or team sports, such as hockey, basketball, baseball, lacrosse, and tennis; fishing; hunting or trapping; or golf. In contrast, more girls than

boys were reported to have participated in swimming, berry picking or other food gathering, dancing, or aerobics and fitness classes. With respect to age differences, older First Nations children participated in skating, competitive or team sports, skiing or snowboarding, golf, using weights or exercise equipment, canoeing or kayaking, and snowshoeing compared to younger First Nations children

Table 32.1. Percentage of First Nations Children Participating in Physical Activities, by Gender and Age

Activity	Gender		Age	
	Boys %	Girls %	6–8 %	9–11 %
Walking	80.4	82.5	88.2	88.5
Swimming	51.6	58.3*	67.2	72.2
Running or jogging	51.8	51.4	59.8	61.5
Bicycling or mountain biking	48.3	48.4	65.1	68.7
Berry picking or other food gathering	26.5	36.8*	40.9	40.5
Dancing (aerobic, traditional, modern, etc).	19.1	38.8*	33.4	30.8
Skating	25.9	25.3	36.8	43.1*
Competitive or team sports (e.g., hockey, basketball, baseball, lacrosse, etc.)	27.0*	19.1	30.2	45.4*
Fishing	24.7*	17.6	29.3	30.9
Gardening or yard work	16.7	19.0	22.0	24.2
Bowling	10.1	13.5	16.6	19.7
Hiking	11.9	11.3	13.6	17.5
Hunting or trapping	12.4*	5.3	10.6	14.4
Skiing or snowboarding	7.6	6.8	7.6	17.4*
Golfing	9.3*	4.1	6.8	10.8*
Using weights or exercise equipment	5.2	4.3	5.6	10.0*
Canoeing or kayaking	3.8	2.9	3.9	6.8*
Attending aerobics or fitness classes	1.8	4.7*	3.6	6.4
Snowshoeing	2.3	3.0	2.9	6.7*
Martial arts	2.4	2.3	3.9	4.3

Note. * Indicates a significantly higher proportion

Sedentary activities. Findings from RHS 2008/10 indicate that 37% of First Nations children spent more than 1.5 hours watching television on an average day, 24.6% spent between 1.0-1.5 hours, 23.6% spent 0.5-1.0 hours, and 14.7% spent less than 0.5 hours.

Time spent at a computer was also assessed; 8.3% of First Nations children spent more than 1.5 hours, 11.4% spent 1.0-1.5 hours, 24.5% spent 0.5-1.0 hours, and 55.8% spent less than 0.5 hours.

Finally, Time spent playing video games was surveyed: 20.6% of First Nations children spent more than 1.5 hours playing video games per day, 14.2% spent between 1.0-1.5 hours, 20.7% spent between 0.5-1.0 hours, and 44.5% spent less than 0.5 hours.

With respect to age differences the proportion of First Nations children who spent 1.5 hours or more on the computer or playing video games increased with age.

Eating a balanced diet. In the 12 months prior to the survey, more than half (58.6%) of First Nations children

were reported to have “always” or “almost always” ate a nutritious balanced diet, while a further 36% “sometimes” did. Very few ate a nutritious, balanced diet “rarely” (3%) or “never” (1.2%). These results were very similar to those found in RHS 2002/03.

Table 32.2. Consumption of Specific Food Items

	Several times a day %	Once a day %	A few times a week %	Once a week %	Never or hardly ever %
Milk and milk products (e.g., yogurt, cheese)	60.0	25.2	10.6	1.7	2.5
Protein (e.g., beef, chicken, pork, fish, eggs, beans, tofu, etc.)	37.5	41.4	15.5	2.4	3.2
Vegetables	34.7	32.8	20.7	5.2	6.6
Fruit (excluding juice)	48.9	27.3	19.1	2.3	2.3
Bread, pasta, rice, and other grains	51.4	31.8	12.7	1.6	2.5
Water	70.5	17.6	7.4	1.5	3.0
Juice	57.9	21.5	12.2	3.0	5.4
Soft drinks or pop	9.5	12.8	27.0	16.0	34.7
Fast food (e.g., burgers, pizza, hotdogs, french fries)	4.4	5.7	28.7	37.0	24.3
Sweets (e.g., candy, cookies)	7.8	13.3	32.9	22.5	23.4

Types of food consumed. Table 32.2 describes frequency of consumption for various specific foods. There were no gender differences in the proportion of First Nations children who drank soft drinks or ate fast foods (e.g., burgers, pizza, hot dogs, or French fries) or sweets (e.g., candy or cookies). With respect to age differences, regular consumption (i.e., several times a day) of fast food and soft drinks increased with age.

Sharing traditional foods. Just under one-third (30.0%) of First Nations children had someone share

traditional food with their household “often” in the 12 months prior to the survey, for 55.1% this occurs “sometimes,” and for 14.9% this occurs “never”. Compared to RHS 2002/03, there was a very slight increase in the proportion that reported that someone “often” shared traditional food with their household.

Types of traditional foods consumed. In comparison to the RHS 2002/03, there was a slight decrease only in the proportion that of children that “often” ate berries and other wild vegetation.

Table 32.3. Frequency of Consumption of Traditional Foods

	Not at all %	A few times %	Often %
Land-based animals (e.g., moose, caribou, bear, deer, bison, etc.)	31.9	49.4	18.7
Small game (e.g., rabbit, muskrat, etc.)	76.2	20.8	3.1
Freshwater fish	44.7	42.6	12.7
Saltwater fish	84.3	12.6	3.1
Other water-based foods (e.g., shellfish, eels, etc.)	89.0	8.9	2.1
Sea-based animals	99.0	0.8	0.2 [Ⓔ]
Game birds (e.g., goose, duck, etc.)	67.4	28.4	4.1
Berries or other wild vegetation	29.3	53.9	16.7
Bannock, fry bread	15.2	49.4	35.5
Wild rice	73.6	21.1	5.3
Corn soup	83.6	12.6	3.9

[Ⓔ] High sampling variability. Use figures with caution.

Physical Activity and Nutrition within a Cultural Framework Perspective

This section of the chapter examines the associations between physical activity and nutrition and aspects of

the broader cultural framework, including concepts of an individual’s spiritual, emotional, mental, and physical well-being and connectedness to family.

Physical activity

Based on data collected in this survey, the proportion of children (6 to 11 years) who are active was higher among those who:

- often ate berries or other wild vegetation in the 12 months prior to the survey (72.9% are active), compared to those who eat these foods only a few times (61.5%) or never (55.9%).
- often have traditional foods shared with their family (70.4% are active), compared to those who sometimes (58.4%) or rarely (59.8%) have traditional food shared.
- participated in sports teams or lessons outside of school on a regular basis (at least once a week), compared to those who did so less often. For example, of those who play on a sports team 4 or more times a week, 71.2% are considered active, compared to 60.8% who participate in sports less than once per week.
- participated in traditional singing, drumming, and dancing regularly (one to three times per week), compared to those who did not. For example, of those who participate 4 or more times a week, 75.7% are considered active, compared to 57.4% who ‘never’ participate.
- have more difficulties getting along with the rest of the rest of the family. For example, among youth with lots of difficulties getting along with family, 67.5% are active, compared to 60.1% of those who have no difficulties.

Nutrition

As reported earlier, 58.6% of First Nations children reported that they “always” or “almost always” ate a nutritious, balanced diet, while a further 36.4% reported eating healthy only “sometimes”. With respect to factors association with general health, the proportion of children eating a balanced and nutritious diet “always” or “almost always” was higher among those who:

- were in excellent health, compared to those who were in fair to poor health;
- participated in sports teams or lessons outside of school one to three times a week, compared to those who did not participate;
- participated in traditional drumming, singing, or

dancing four times a week, compared to those who did so less often or never;

- had someone in their household often share traditional food with them, compared to those who never did;
- infrequently (less than once a week) consumed soft drinks or fast food, compared, to those who frequently did (several times a day);
- never ate sweets, compared to those who did;
- ate vegetables and fruit several times a day, compared to those who ate fewer servings; and
- often ate traditional protein-based foods such as small and large game, fowl, and fish, often ate berries and other wild vegetation, and often ate other traditional foods such as bannock, corn soup, or wild rice, compared to those who rarely or never did.

Table 32.4 reveals physical activity and nutrition by variables included in the cultural framework

Table 32.4. Relationship of Key Indicators with Physical Activity and Nutrition

	Physical activity	Diet
Individual factors		
Age	✓	✓
Gender	x	x
Income	x	x
Parents education level	✓	x
Health factors		
General Health Status	x	✓
Sedentary activity	x	x
Physical activity	n/a	x
BMI	x	x
Balanced and nutritious diet	x	n/a
Traditional foods	✓	✓
Social/mental health factors		
Repeated a grade	x	✓
Get along well with family	✓ (n-a)	✓
Takes part in sport teams outside of school	✓	a
Takes part in traditional drumming, singing, dancing	✓	a

Note. ✓ = Significant association at the $p = 0.05$ level; x = No observed association; n/a = Not applicable, (-) negative association.

With respect to factors associated with mental well-being, the proportion of children eating a nutritious, balanced diet “always” or “almost always” was higher among those who:

- got along well with their family, compared to those who only sometimes did or did with a lot of difficulty; and,
- those who had not repeated a grade.

DISCUSSION

Childhood obesity in Canada has escalated over time (Shields, 2006; Tremblay & Willms, 2000), and this trend is of particular concern given its consequences for health (Ball & McCargar, 2003), which include increased risk of many health conditions such as diabetes, asthma, gallstone development, hepatitis, obstructive sleep apnea, menstrual abnormalities, and neurological conditions (Must & Strauss, 1999). Long-term consequences can often lead to adult morbidity and mortality (Must & Strauss, 1999). Findings from the recently released CHMS indicate that fitness levels for children and adolescents declined between 1981 and 2007–09 (Tremblay et al., 2010). During this same time period, flexibility and muscular strength scores also decreased, while mean BMI, waist circumference, and the sum of skinfolds have increased.

Physical activity assists in promoting healthy growth and development, improving mental health, and increasing self-esteem and physical competence among children and youth (Janssen & LeBlanc, 2010). Revised guidelines in Canada recommend that for health benefits, children and youth aged 5 to 17 years should accumulate 60 minutes of moderate-to-vigorous physical activity each day (Tremblay et al., 2011) and should engage in vigorous physical activity at least three days a week.

Although low levels of physical activity appear among all children (CFLRI, 2009; Colley et al., 2011), relatively lower rates of activity appear among certain groups, including girls and older youth (CFLRI, 2009). Additionally, certain types of activity are more popular among certain population groups. Results from RHS 2008/10 indicate that certain activities are preferred by a particular gender: more First Nations boys than girls participated in competitive team sports, fishing, hunting or trapping, and golfing, whereas relatively more girls participated in swimming, berry picking or other food gathering, dancing, and aerobics or fitness classes. Age

differences in types of activities were also observed: First Nations children aged 9 to 11 years more often reported participating in skating, competitive or team sports, skiing or snowboarding, golfing, using weights or exercise equipment, canoeing or kayaking, and snowshoeing in the year prior to the survey than did children aged 6 to 8 years. Understanding preferences for types and intensity of activity for various groups, is important for developing physical activity strategies.

Moreover, recognizing the value of all physical activities, including organized and unorganized activities, outdoor activities, or active travel is important. The CANPLAY study examined time spent in various active pursuits between the end of the school day and dinner. During this time, children and youth who play outdoors take roughly 2,000 more steps per day, which translates into about 20 more minutes of activity, compared to children who play indoors. Also, children who participate in organized and unorganized activities during this time also take more steps than those who do not (CFLRI, 2008a). Other research shows that time spent outdoors is positively correlated with children’s physical activity levels and was a major factor differentiating between children who are active enough and those who are not (Centers for Disease Control and Prevention, 2000).

Sedentary behaviour is associated with obesity and metabolic disease, independent of moderate-to-vigorous activity (Andersen, Crespo, Bartlett, Cheskin, & Pratt, 1998; Crespo et al., 2001; Janssen, Katzmarzyk, Boyce, King, & Pickett, 2004), and its implications should be recognized in healthy living strategies. Using accelerometers, the CHMS measured the amount of time of youth spend being sedentary and found that daily sedentary time for Canadian children and youth averages 8.6 hours—62% of their waking hours—and this time increases with increasing age (Colley et al., 2011). The RHS 2008/10 data indicate that time spent on computers, watching television, and playing video games varies by gender and increases with age. Regulating the amount of time spent on these activities may be a useful component of a healthy living strategy.

Diet is also a critical component of the energy balance equation. Findings from RHS 2008/10 indicate that almost three-fifths of First Nations children reported always or almost always eating a nutritious, balanced diet. However, the majority of First Nations children consumed soft drinks and fast food on a

somewhat regular basis (at least weekly), and regular consumption (several times a day) of soft drinks and fast food increased with age. The majority of First Nations children have had traditional foods shared with them in their household at least sometimes, and the RHS data indicate that the consumption of some traditional foods is associated with being active and eating a nutritious, balanced diet. Research is required to provide additional detail on the nutrients in the diet, quantity of intake, and access to nutritious choices in order to understand the issues related to achieving energy balance among First Nations children.

A key purpose of this chapter was to understand First Nations children's physical activity and dietary patterns in the context of a cultural framework. An ecological or cultural framework can be comprised of physiological factors, such as growth and development; psychological factors, such as motivation, confidence, and self-efficacy; socio-cultural factors, such as the role of family and socio-economic status; and ecological factors, such as the availability of opportunities to be active and to obtain nutritious foods, geography, and climate. Such a framework for data collection is particularly useful in the development of interventions that are population-specific (WHO, n.d.b.). When developing and promoting these strategies, knowledge about the barriers to healthy living, motivations for healthy living, and the cultural definition for healthy living are important (Thompson et al., 2001).

This chapter examined a host of factors that can influence behaviour. Results demonstrated that physical activity and consumption of a nutritious, balanced diet, is associated with sharing traditional food and consumption of some traditional foods, as well as regular participation in physical activities outside of school, and participation in traditional drumming, singing, or dancing. In addition, consumption of a nutritious, balanced diet was associated with being in excellent health, getting along well with one's family, and not repeating a grade.

CONCLUSIONS

Results described in this chapter based on RHS 2008/10 provided a snapshot of current physical activity and nutrition among First Nations children living on-reserve and in northern communities. This chapter provides information and evidence to help inform strategies on these key public health issues. Additional research would

supplement this self-reported data by collecting details on food intake and diet quality, including objective measures of energy intake. Similarly, monitoring of physical activity levels on a regular basis is important and should be expanded to include total physical activity across domains and objective measurement of activity, including data collection through pedometers or accelerometers. Objective anthropometric measures, including height, weight, and waist girth, for this population would also be useful to compare to data available nationally. This data would be important for identifying and assessing the success of policies, strategies, and programs that will help shape the future health of First Nations children living in First Nations communities.

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Chapter 33

Chronic Health Conditions and Health Status

EXECUTIVE SUMMARY

This chapter explores the health of First Nations children living on-reserve and in northern communities. Prevalence of health conditions, treatment of health conditions, barriers to treatment, and the association between health conditions and commonly cited determinants of health are explored. The First Nations Regional Health Survey (RHS) 2008/10 revealed that the majority of parents/guardians of First Nations children living in First Nations communities rated their child's health as "very good" or "excellent". Approximately one-third (35.6%) of First Nations children have been told by a health care professional that they have a health condition. Diagnosis of a health condition was less likely among First Nations girls than among First Nations boys. The most commonly diagnosed health conditions were allergies (11.4%), asthma (10.1%), dermatitis/atopic eczema (7.5%), and chronic ear infections/ear problems (5.9%). The prevalence of these health conditions was comparable to, or lower than, that observed among children in the general Canadian population. Improvements were observed in the prevalence of asthma and chronic ear infections/ear problems when compared to the results from RHS 2002/03. More than half of First Nations children with the most commonly diagnosed health conditions (i.e., allergies, asthma, dermatitis/atopic eczema, and chronic ear infections/ear problems) were currently undergoing treatment. Parents or guardians of First Nations children with a health condition reported experiencing various barriers to when seeking treatment for their child (e.g., "waiting list is too long", "felt health care provided was inadequate", "doctor or nurse not available in my area", and "service not available in my area"). The associations between various determinants of health and health conditions were examined.

KEY FINDINGS

- The majority of parents/guardians of First Nations children with a health condition perceived their child’s health to be “very good” or “excellent.”
- One-third (35.6%, 95% CI [33.7, 37.5]) of First Nations children had been told by a health care professional that they had at least one health condition.
- First Nations girls were less likely than First Nations boys to have been diagnosed with at least one health condition (31.6% vs. 39.3%) and to have two or more health conditions (11.0% vs. 15.9%).
- The most commonly diagnosed health conditions were allergies (11.4%), asthma (10.1%), dermatitis or atopic eczema (7.5%), and chronic ear infections (5.9%).
- Approximately 7% of First Nations children had been diagnosed with a health condition that is likely to negatively impact their learning ability, such as a cognitive or mental disability, a learning disability, ADD/ADHD, or speech or language difficulties. The proportion of these conditions was higher among boys versus girls (10.0% vs. 4.6%).
- No change in the prevalence of allergies was observed since RHS 2002/03; however, a higher proportion of First Nations children with allergies were undergoing treatment for allergies in the 2008/10 RHS, compared to the 2003/03 RHS (42.5% vs. 29.5%).
- The prevalence of asthma decreased (14.6% vs. 10.1%), and the number of children receiving treatment for asthma increased (57.2% to 69.2%) between the 2002/03 RHS and the 2008/10 RHS.
- The prevalence of chronic ear infections decreased between the 2002/03 RHS and the 2008/10 RHS (9.2% to 5.9%).
- A smaller proportion of First Nations children who live in a smoke-free home have been diagnosed with chronic bronchitis, compared to those who live in a home with cigarette smoking (0.8% vs. 2.1%).
- Many parents/guardians of First Nations children with at least one health condition reported experiencing barriers to treatment. The barriers most often reported were: “waiting list is too long” (34.2%), “felt health care provided was inadequate” (19.3%), “doctor or nurse not available in my area” (19.2%), and “service was not available in my area” (17.1%).

INTRODUCTION

For the most part First Nations children appear to be in good health. Past research has revealed that the majority of parents/guardians of First Nations children rate their children's health as good to excellent (First Nations Information Governance Centre, 2005). In addition, when health conditions were diagnosed, the majority these conditions are generally controllable with treatment (FNIGC, 2005). Finally the prevalence of the most common health conditions among First Nations children (allergies, asthma, and dermatitis/atopic eczema) is no higher than that observed among children in the general Canadian population (FNIGC, 2005). Yet, despite these findings, First Nations children are still at a higher risk for later development of more serious health conditions, including diabetes, hepatitis, heart condition, and cognitive or mental disability than are children in the general Canadian population (Kirmayer, Simpson & Cargo, 2003; Waldram, Herring & Young, 2006).

There are many avenues for mitigating risk of future health problems, such as encouraging the adoption of healthy habits early in life (eating a proper nutritious diet and engaging in exercise), providing children with a safe and healthy living environment (free from poverty, over-crowding etc.), and increasing access to both preventative and curative health care (Li, Mattes, Stanley, McMurray, & Hertzman, 2009). Although some of these items may seem like easy fixes (e.g., encouraging healthy eating), oftentimes First Nations communities and families do not have access to the same resources (whether they be economic, social or educational) as those in the general Canadian population. Thus, when looking at the prevalence of health conditions among First Nations children, it is also of great importance to simultaneously assess the presence of these resources/health determinants. This information may help to pinpoint areas in which change – whether small or large scale – may lead to improvements.

The purpose of this chapter was to report the prevalence and treatment of health conditions, as well as the link between various determinants of child health (e.g., parental education, parental income, nutritious diet) and the presence of health conditions among First Nations children from birth to 11 years of age living in First Nations communities.

METHODS

Analyses were based on data from the parent(s)/guardian(s) of First Nations children from birth to 11 years of age. The parent(s)/guardian(s) of First Nations children were asked whether their children had any of the following health conditions: allergies, chronic anemia, anxiety or depression, asthma, attention deficit disorder/attention deficit hyperactivity disorder (ADD/ADHD), autism, blindness or serious vision problems that cannot be corrected with glasses, cancer, chronic bronchitis, cognitive or mental disability, dermatitis or atopic eczema, diabetes, fetal alcohol spectrum disorder (FASD), hearing impairment, heart condition, hepatitis, kidney disease, learning disability, speech or language difficulties, tuberculosis, or chronic ear infections/ear problems.

The responses of parent(s)/guardian(s) to the questions on health conditions variables were recoded to create a dichotomous variable: “at least one health condition” vs. “no health condition.” To assess co-morbidity of conditions—that is, having two or more—participants were categorized as having zero, one, or two or more health conditions.

The RHS 2008/10 also included questions about common covariates of health conditions: gender, emotional or behavioural problems, smoking status of the mother during pregnancy, low birth weight (less than 2.5 kilograms), breastfeeding, nutrition, household smoking status, parent(s)/guardian(s) educational attainment, and parent(s)/guardian(s) income.

RESULTS

The RHS 2008/10 revealed that approximately one-third (35.6%, 95% CI [33.7, 37.5]) of First Nations children from birth to 11 years of age have been told by a health professional that they have at least one health condition. Co-morbidity of health conditions was not common (13.5%, 95% CI [12.4, 14.8]).

A lower proportion of First Nations girls have been diagnosed with at least one chronic health condition, compared to males (31.6% vs. 39.3%). Co-morbidity of chronic conditions was also lower among girls (i.e., two or more health conditions, 11.0% vs. 15.9%).

The most commonly diagnosed health conditions among First Nations children were allergies, asthma, dermatitis or atopic eczema, chronic ear infections or ear problems, and speech or language difficulties (see Table 33.1).

Prevalence and Treatment of Specific Chronic Health Conditions

Allergies

Allergies were the most commonly diagnosed health condition among First Nations children (11.4%, 95% CI [10.4, 12.6]). No change in prevalence was observed between RHS 2002/03 and RHS 2008/10 (see Table 33.1). First Nations children with allergies were diagnosed, on average, at 3.3 years of age.

Almost half (42.5%) of all First Nations children with allergies reported currently undergoing treatment for allergies, an increase since RHS 2002/03, when 29.5% reported undergoing treatment (see Table 33.1). A minority (10.3%) of First Nations children with allergies reported taking antihistamines, with one-quarter (24.5%) of these children reporting taking antihistamines at least once per day (95% CIs [15.7, 36.1], [37.9, 47.3], [24.5, 35.1], and [8.1, 13.0], respectively).

No gender differences were observed in the prevalence, treatment, or age of diagnosis for allergies.

Asthma

Asthma was the second most commonly diagnosed health condition among First Nations children (10.1%, 95% CI [9.1, 11.1]). The prevalence of asthma among First Nations children was comparable to that of children in the general Canadian population (13.4%; Garner & Kohen, 2008).

The prevalence of asthma in First Nations children decreased from 14.6% in RHS 2002/03 to 10.1% in RHS 2008/10 (95% CIs [13.0, 16.4] and [9.1, 11.1]). This result is in contrast to that observed among children in the general Canadian population; in this population, the prevalence of asthma has shown an upward trend (Public Health Agency of Canada, 1999 [between 0 and 14 years of age]; Garner & Kohen, 2008 [between 0 and 11 years of age]).

On average, among First Nations children, asthma was diagnosed by a health professional at 2.3 years of age (no gender difference). Improvements have been made with respect to the treatment of this health condition; a greater proportion of First Nations children with asthma reported currently undergoing treatment, compared to those with asthma in RHS 2002/03 (69.2% vs. 57.2% (95% CIs [64.4, 73.6] and [51.0, 63.2], respectively). The RHS 2008/10 revealed that the majority (79.2%) of First Nations children with asthma had, at some point, taken medication (e.g., Ventalin) for their asthma. Of these First Nations children, approximately half take

asthma medication at least once per week (44.3%), with 23.4% taking asthma medication at least once per day.

A lower proportion of First Nations girls have been diagnosed with asthma compared to boys (6.8% vs. 13.2%). No gender difference was observed in the proportion of First Nations boys and girls with asthma who had sought or were currently seeking treatment or taking medication for their asthma.

Dermatitis or atopic eczema

Dermatitis or atopic eczema was diagnosed in 7.5% (95% CI [6.6, 8.5]) of First Nations children. First Nations children with dermatitis or atopic eczema were diagnosed, on average, at 2.2 years of age. At the time of the survey, the majority of First Nations children with dermatitis or atopic eczema were currently undergoing treatment or taking medication for their condition (70.8%, 95% CI [64.6, 76.3]). No gender differences were observed in the prevalence of treatment of this health condition.

Chronic ear infections

In RHS 2008/10, approximately 6% of First Nations children had been diagnosed with chronic ear infections, a decrease from the rate observed in RHS 2002/03 (5.9% vs. 9.2%, 95% CIs [5.1, 6.8] and [8.1, 10.4], respectively). Many First Nations children who had been diagnosed with a chronic ear infection reported having had two or more ear infections in the 12 months prior to the survey (41.1%, 95% CI [34.9, 47.6]). No gender differences were observed in the prevalence or frequency of chronic ear infections.

Table 33.1. Chronic Health Conditions of First Nations Children in RHS 2002/03 and RHS 2008/10

Health Condition	RHS 2002/03 %	RHS 2008/10 %
ADD/ADHD	2.6	2.0
Allergies	12.2	11.4
Anemia (chronic)	n/a	0.6 ^E
Anxiety or depression	n/a	0.7
Asthma	14.6	10.1
Autism	n/a	0.5 ^E
Blindness or serious vision problems that cannot be corrected with glasses	1.1	0.9
Cancer	n/a	F
Chronic bronchitis	3.6	1.0
Chronic ear infections	n/a	5.9
Cognitive or mental disability	F	0.4 ^E
Dermatitis or atopic eczema	n/a	7.5
Diabetes	0.2	F
FASD	1.8	0.9
Hearing impairment	n/a	1.0
Heart condition	2.1	1.6
Hepatitis	n/a	F
Kidney disease	F	0.3 ^E
Learning disability	2.9	2.6
Speech or language difficulties	n/a	4.7
Tuberculosis	0.5	0.6 ^E

Note: Prevalence of hepatitis, chronic anemia, speech or language difficulties, autism, anxiety or depression, dermatitis or atopic eczema, and cancer were not assessed in RHS 2002/03; n/a = not available because it was not included in the survey. ^F = Estimate not provided because of small sample size ($n < 5$) or extreme sampling variability; ^E = high sampling variability – interpret estimate with caution.

Table 33.1. Percentage of First Nations Children with a Chronic Health Condition Who Sought Treatment for the Condition, RHS 2002/03 and RHS 2008/10

Health Condition	RHS 2002/03 %	RHS 2008/10 %
ADD/ADHD	37.6	57.6
Allergies	29.5	42.58
Anemia (chronic)	n/a	30.0
Anxiety or depression	n/a	21.6
Asthma	57.2	69.2
Autism	n/a	29.6
Blindness or serious vision problems that cannot be corrected with glasses	32.5	54.6
Cancer	n/a	F
Chronic bronchitis	24.0	52.7*
Chronic ear infections	27.4	n/a
Cognitive or mental disability	66.9	46.9
Dermatitis or atopic eczema	n/a	70.8
Diabetes	50.7	35.2
FASD	9.8	24.4
Hearing impairment	27.2	54.5
Heart condition	13.4	31.9
Hepatitis	n/a	F
Kidney disease	65.0	62.1
Learning disability	36.8	58.3*
Speech or language difficulties	n/a	57.9
Tuberculosis	22.5	F

Note. F = Estimate not provided because of small sample size ($n < 5$); n/a = not available because it was not included in the survey.
* Statistically significant difference at $p < 0.05$ (two-tailed)

Conditions associated with learning difficulties

Approximately 7% (7.4%, 95% CI [6.5, 8.3]) of First Nations children had been diagnosed with a condition that was likely to have a negative impact on their learning ability, such as a cognitive or mental disability, a learning disability, ADD/ADHD, or speech or language difficulties. A lower proportion of First Nations girls were diagnosed with one of these health conditions compared to boys (4.6% vs. 10.0%).

Other chronic health conditions

Fewer than 5% of First Nations children reported having been diagnosed with any of the other health conditions assessed. Although the prevalence was low, improvements were still observed between RHS 2002/03 and RHS 2008/10 for chronic bronchitis and Fetal Alcohol Spectrum Disorder (see Table 33.1).

General and Emotional Health

General health status

A large majority (87.5%) of First Nations children was considered by their parent(s)/guardian(s) to have “very good” or “excellent” general health; however, this was mediated by whether the child had been diagnosed with a health condition. A lower proportion of First Nations children with at least one chronic health were rated by parent(s)/guardian(s) as having “very good” or “excellent” general health, compared to children without a chronic condition (77.2% vs. 92.5%). On the other hand, a higher proportion of children with a chronic health condition were rated by their parents as having “good” (17.0% vs. 6.8%) or “fair/poor” (0.7% vs. 5.8%) general health, compared to children without a condition.

Emotional and behavioural problems

A higher proportion of children with a chronic health condition were perceived by their parent(s)/guardian(s) as having more emotional or behavioural problems than other boys or girls of the same age (compared to children who do not have a health condition, 19.1% vs. 8.2%). For example, a higher proportion of children with ADD/ADHD, speech/language difficulties and learning disabilities were perceived as having more emotional and behavioural problems (compared to children without these health conditions).

Risks and Protective Factors for Chronic Health Conditions***Mother smoked during pregnancy***

A slightly higher proportion of First Nations children whose mothers smoked during pregnancy had been diagnosed with a chronic health condition (compared to those whose mother did not smoke during pregnancy; 37.7% vs. 33.1%, 95% CIs [34.9, 40.7] and [30.7, 35.5]).

Low birth weight

Low birth weight is an important indicator of health because it has been shown to be associated with a wide variety of health conditions across the entire lifespan of the individual (Rapheal, 2010). A slightly higher proportion of First Nations children born with low birth weight (less than 2.5 kilograms) have been diagnosed with a chronic health condition (39.3%) compared to those born at normal birth weight (35.0%) and high birth weight (36.5%).

Breastfeeding

Epidemiologic research has shown that human milk and breastfeeding of infants provides advantages for a child's general health, growth, and development, as well as significantly decreases the child's risk of developing many acute and chronic diseases (Statistics Canada, 2009). In RHS 2008/10, no difference in prevalence of chronic health conditions was observed among those who were (35.0%) and who were not breastfed (35.6%). It may be that many of the benefits of breast-feeding do become apparent until later in life.

Smoke-free household

Chronic bronchitis was the only health condition assessed that varied in prevalence between smoke-free homes and non-smoke-free homes; a lower proportion of First Nations children who live in a smoke-free home had been diagnosed with chronic

bronchitis compared to children who reside a home where someone smokes (0.8% vs. 2.1%).

Parent(s)/guardian(s) educational attainment and income

No clear association was observed between prevalence of health conditions and parental level of education.

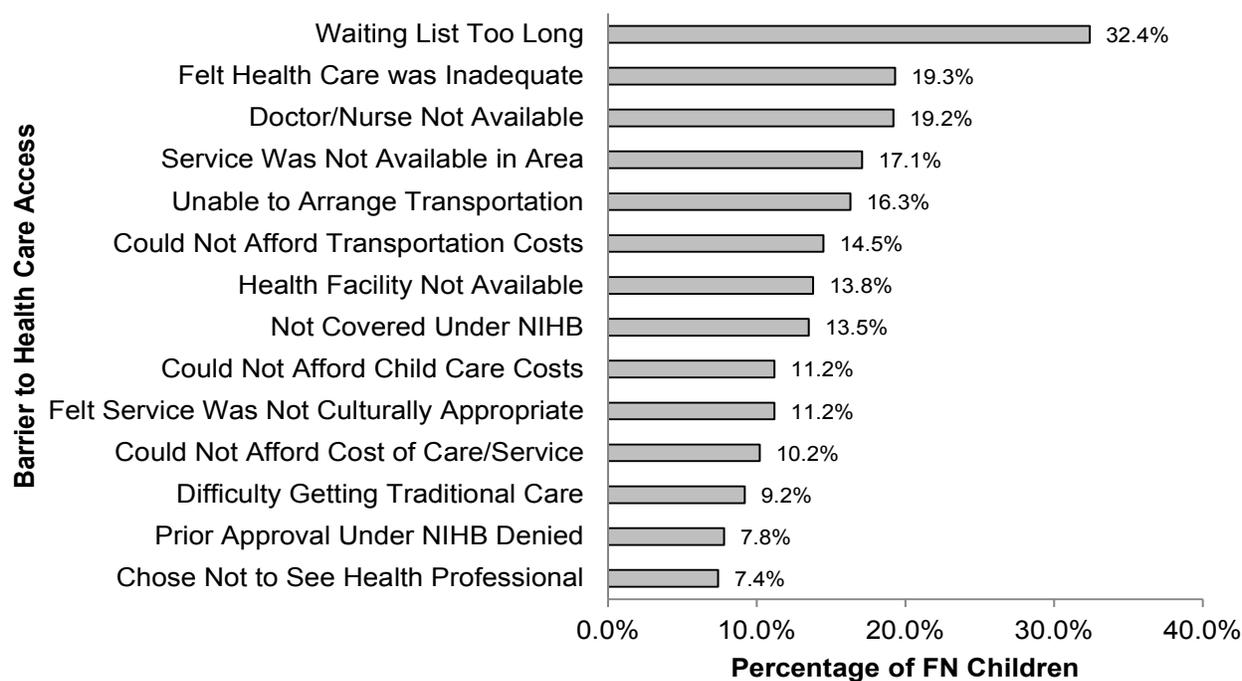
Health Indicators***Nutrition***

No difference was observed in the proportion of children with or without a health condition in the frequency of eating nutritious food always/almost always (56.1% vs. 59.8%), sometimes (39.3% vs. 35.1%), and rarely/never (4.6% vs. 5.2%).

Barriers to Receiving Health Care

All parent(s)/guardian(s) were asked whether they had experienced any of the 14 suggested barriers to receiving health care for their child during the 12 months prior to RHS 2008/10. Approximately half (49.3%, 95% CI [47.3, 51.4]) of parents/guardians reported experiencing at least one barrier to receiving health care [on average parents/guardians experienced 1.5 barriers (SE = 0.47)]. The most common barriers faced by parents/guardians of a child with a health condition were: “waiting list is too long”, “felt health care provided was inadequate”, “doctor or nurse not available in my area,]” and “service was not available in my area” (see Figure 33.2).

Figure 33.2. Barriers to Accessing Health Care Reported by Parents and Guardians of First Nations Children with Health Conditions



Note. NIHB = Non-Insured Health Benefits: the Health Canada program that provides support to cover health care costs, including medications, dental care, vision care, and medical supplies and equipment.

DISCUSSION

The RHS 2008/10 revealed a number of positive results regarding the health of First Nations children living in First Nations communities. The majority of First Nations children who had been diagnosed with a health condition were perceived by their parents or guardians as having “very good” or “excellent” general health. This positive health rating is likely due in part to the fact that most common health conditions experienced by First Nations children (i.e., asthma, allergies, dermatitis or atopic eczema, and chronic ear infections or ear problems) are those that are generally controllable with treatment or by avoiding environmental triggers (e.g., irritants, pollutants, allergens, mold, indoor smoke; Health Canada, 2006). Health conditions that may be considered by some to be more serious, such as heart condition, tuberculosis, diabetes, and Fetal Alcohol Spectrum Disorder, were diagnosed in less than 1% of First Nations children. First Nations boys appear to be at increased vulnerability for diagnosis of a health condition (see Butler, 2004).

Improvements between RHS 2002/03 and RHS 2008/10 were particularly apparent regarding the prevalence of

and treatment seeking for asthma. Although the rate of childhood asthma in the general Canadian population has been on the rise, the prevalence of asthma among First Nations children living in First Nations communities has decreased. In addition, fewer First Nations children who have been diagnosed with asthma experienced an asthma attack in the 12 months prior to the survey than did children in the general Canadian population. Additionally, the proportion of First Nations children receiving treatment for their asthma increased between RHS 2002/03 and RHS 2008/10.

On average, 7% of First Nations children had been diagnosed with ADD/ADHD, cognitive or mental disorder, or speech/language difficulties. These conditions are likely to result in difficulties with educational attainment and, perhaps later, job prospects and income level.

For most of the health conditions assessed, at least half of the First Nations children diagnosed with those conditions were undergoing some form of treatment. This finding suggests that many First Nations children are unable to receive treatment due to barriers to receiving health care. However, for some

First Nations children, treatment may not have been necessary at the time of the survey. For example, some First Nations children might have undergone a previously successful treatment or were managing to control the health condition through other means. Future surveys may look more closely at why First Nations children are not undergoing treatment.

A minority of parent(s)/guardian(s) whose child had been diagnosed with a health condition (20%) reported that they had experienced barriers to receiving health care (e.g., waiting list too long), suggesting that work still must be done to facilitate improved treatment of health conditions among First Nations children living in First Nations communities.

Finally, the findings of RHS 2008/10 revealed potential predictors of poor health among First Nations children. The prevalence of certain health conditions was higher among First Nations children whose mothers had smoked during pregnancy, First Nations children who were born with low birth weight, and First Nations children who had been raised in a home where others smoked. The current research did not control for covariates, and it is impossible to discern the directionality of the associations identified due to the cross-sectional nature of the survey. Although other commonly cited determinants of health, such as nutrition, parent(s)/guardian(s)' educational attainment and income were not linked with higher rates of health conditions among First Nations children, this does not mean that they do not have an impact on health. There is still a good possibility that these variables would also increase the risk of developing future health conditions.

CONCLUSIONS

In summary, First Nations children, overall, appear to be in good health. The most common health conditions reported were those that are generally controllable with proper treatment. In addition, many improvements have been observed between RHS 2002/03 and RHS 2008/10 regarding both the prevalence and the treatment of health conditions. However, despite improvements in the treatment of health conditions, a substantial minority of parent(s)/guardian(s) of children who had been diagnosed with a health condition reported barriers to receiving health care. Although the health of First Nations children living on-reserve or in northern communities appears to be relatively good, they are still at a higher risk of developing future health conditions, such as diabetes,

than are children in the general Canadian population. Thus, it is important to encourage First Nations parent(s)/guardian(s) to avoid behaviours that may have a negative impact on the health of their children, such as smoking while pregnant and smoking in the home, and to encourage their children to develop healthy behaviours in order to reduce the risk of future health conditions.

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Chapter 34

Dental Care Utilization, Baby Bottle Tooth Decay and Treatment Needs

EXECUTIVE SUMMARY

In this chapter, rates of dental care utilization, the prevalence and determinants of baby bottle tooth decay (BBTD) and the dental treatment needs of First Nations children from birth to 11 years of age are explored through responses from primary caregivers who participated in the First Nations Regional Health Survey (RHS) 2008/10. Among First Nations parents and guardians living on-reserve or in northern communities, 69.2% reported their child had had some dental care in the 12 months prior to RHS 2008/10. The highest prevalences of dental care utilization within the year prior to the survey were reported among children aged 9 to 11 years (87.6%), followed by children aged 6 to 8 years (79.6%) and children aged 3 to 5 years (74.3%), and were lowest among children from birth to age 2 (28.7%). Compared to RHS 2002/03, utilization increased 8.2% among children aged 3 to 5 years, but decreased 6.0% among those aged 6 to 8 years. The proportion of children aged 6 to 11 years in the current RHS who received dental care in the 12 months prior to the survey (83.8%) was lower than that of children of the same age in the general Canadian population (91.3%) and that of Aboriginal children living off-reserve (92.2%).

The prevalence of BBTD was high in First Nations children living in First Nations communities, as 18.7% of infants from birth to 2 years of age and 30.9% of preschoolers aged 3 to 5 years were affected by BBTD, compared to 11.9% and 29.4%, respectively, in RHS 2002/03. Although reports of BBTD have increased among infants, the prevalence of treatment for the condition has also increased for all age categories since the last RHS. Specifically, 40.6% of infants with BBTD were treated for the condition, compared to 27.4% in RHS 2002/03, and just over three-quarters of preschoolers (77.1%) received treatment for BBTD, compared to 67.4% in RHS 2002/03. The proportion of children with BBTD was lower among those who were fed breast milk in their baby bottles (23.5%) than among those who were never fed breast milk in their bottles (30.2%). A trend was found between the duration of breastfeeding and the prevalence of BBTD; 20.7% of children who were breastfed for more than six months were affected by BBTD, compared to 28.8% of children who were breastfed for less than 12 weeks. Among children who were given soft drinks in their baby bottles, the proportion with BBTD was nearly twice as high as the proportion with BBTD among those who were not given soft drinks (51.3% vs. 27.6%). Similarly, children who were bottle-fed Kool-Aid and other powdered drinks also had BBTD twice as often as children who were not fed sugary powdered drinks (47.7% vs. 24.4%).

A higher proportion of obese children (33.4%) experienced BBTD than of children who were overweight (24.1%) or who were underweight or normal weight (22.9%). Children living in crowded homes were more likely to be affected by BBTD (30.3%) than were children in less crowded homes (23.1%).

Dental care needs as reported by parents and caregivers have risen dramatically since RHS 2002/03. Just over one-fifth of children (21.7%) under the age of 1 required dental care, and percentages increased with age; 49.8% of children aged 1 to 2 years, 71.2% of those aged 3 to 5 years, 76.9% of those aged 6 to 8 years, and 74.2% of children aged 9 to 11 years required care. A large proportion of children aged 9 to 11 years were in need of restorations (41.9%) and maintenance (71.9%), and 14.3% required orthodontic care. Among children aged 1 to 2 years, 14.8% required tooth extraction(s), and 23.4% needed restorative treatment.

The findings indicated that a majority of First Nations children received dental care within the 12 months prior to the survey but that the levels of BBTD and their treatment needs have significantly increased since RHS 2002/03. The latter may be due to the lack of individual control over many of the determinants of health in First Nations communities that perpetuate the existence of oral health inequalities between First Nations children and children in the general population in Canada.

KEY FINDINGS

- 69.2% of parents and caregivers interviewed reported their child (ages 0 to 11 years) had some dental care in the 12 months prior to the survey, 68.3% for boys and 70.2% for girls.
- The highest proportions of dental care utilization within the previous year occurred among children aged 9 to 11 years (87.6%), followed by children aged 6 to 8 years (79.6%) and aged 3 to 5 years (74.3%), and were lowest among children aged 0 to 2 years (28.7%).
- 83.8% of First Nations children aged 6 to 11 years received dental care in the last year. The equivalent finding for non-Aboriginal peers was 91.3% and for Aboriginal children living off-reserve was 92.2%.
- The prevalence of BBTD has increased among First Nations children: 18.7% of infants had teeth affected by BBTD compared to 11.9% in RHS 2002/03; 30.9% of children aged 3 to 5 years had been affected by BBTD compared to 29.4% in RHS 2002/03.
- Of the infants with BBTD, 40.6% were treated for the condition, compared to 27.4% in RHS 2002/03, while over three-quarters of preschoolers (77.1%) were also treated for BBTD, compared to 67.4% in RHS 2002/03.
- Among children aged 6 to 11 years, 26.9% had a history of BBTD, but the vast majority (90.4%) had been treated for the condition.
- The proportion of children with BBTD was lower among those who were fed breast milk in their baby bottles (23.5%) than among those who were not fed breast milk in their bottles (30.2%).
- A trend was found between the duration of breastfeeding and the prevalence of BBTD; 20.7% of children who were breastfed for more than six months were affected by BBTD, compared to 28.8% of those who were breastfed for less than 12 weeks.
- Among children who were given soft drinks in their baby bottles, the proportion with BBTD was nearly twice as high as the proportion with BBTD among those who were not given soft drinks (51.3% vs. 27.6%).
- Among children bottle-fed Kool-Aid and other powdered drinks, the proportion with BBTD was twice as high as the proportion with BBTD among those who were not fed sugary powdered drinks (47.7% vs. 24.4%).
- A higher proportion of obese children (33.4%) than of overweight (24.1%) and underweight or normal weight children (22.9%) experienced BBTD.
- Children living in crowded homes were more likely to be affected by BBTD than those in less crowded homes (30.3% vs. 23.1%).
- 21.7% of First Nations children required care before their first birthday according to primary caregiver reports. The proportions of dental care needs increased to 49.8% for children aged 1 to 2 years, 71.2% for those aged 3 to 5 years, 76.9% for those aged 6 to 8 years and 74.2% for children aged 9 to 11 years.
- Among children aged 0 to 2 years, 21.4% required restorative treatment, 23.3% needed fluoride treatment, and 13.3% needed extractions because of dental caries.
- 36.2% of children aged 3 to 5 years and 41.9% of children aged 6 to 11 years needed dental fillings in RHS 2008/10, compared to 28.4% and 35.4% in RHS 2002/03, respectively.
- 71.1% of First Nations children aged 9 to 11 years were in need of a checkup and preventive care, and 14.3% required orthodontic care, as reported by a parent or caregiver.

INTRODUCTION

Dental caries is the most common chronic disease among First Nations children living in First Nations communities in Canada, the end result of decreased access to primary, secondary, as well as tertiary preventive care (First Nations Information Governance Committee [FNIGC], 2005). Despite publicly funded health and dental care, access to this care for First Nations children continues to lag behind that of the general Canadian population. In RHS 2002/03, 69.1% of First Nations children from birth to 11 years of age had dental care for any reason in the year prior to the survey, with rates of care being just over 85% among those aged 6 to 11 (FNIGC, 2005). Despite a seemingly high utilization of dental services by First Nations children living in remote communities in northern Canada observed in the previous RHS, the rates of parent- and caregiver-perceived treatment needs were also high, suggesting that barriers to care remain a problem for many families. The need for dental fillings in remote and isolated communities was reported by 57.0% of caregivers of children aged 3 to 5 years, by 60.8% of those aged 6 to 8 years and by 63.0% of those aged 9 to 11 years (FNIGC, 2005). Of particular concern are the alarming rates of dental caries in very young First Nations children. The RHS 2002/03 found that almost one in three (29.4%) First Nations children aged 3 to 5 years in Canada had experienced dental caries as reported by the parent or caregiver, and out of those, 67.4% had been treated for the disease (FNIGC, 2005).

Baby bottle tooth decay (BBTD) is a condition characterized by extensive carious attacks in infants, toddlers, and preschool-aged children that are largely associated with regular exposure to sugar, often in sugary drinks given to children in nursing bottles. However, health professionals use the term “early childhood caries,” or ECC, as not all children who are exposed to inappropriate feeding practices, such as prolonged, ad lib bottle feeding and nap-time feeding, develop BBTD. The association of these practices with BBTD is inconsistent, and the strength of association varies greatly, whereas the association of BBTD with childhood poverty, ethnicity and immigrant status of parents, limited maternal education, and increased family size are stronger and more consistent (Al-Jewair & Leake, 2010; Schroth & Cheba, 2007; Schroth & Moffatt, 2005; Tiberia et al., 2007; Werneck, Lawrence, Kulkarni, & Locker, 2008). Severe BBTD also may be a risk marker for child maltreatment and malnutrition, such as iron deficiency anemia (Clarke et al., 2006; Moffatt, 1989, 1995; Valencia-Rojas, Lawrence, & Goodman, 2008).

Breastfeeding over one year of age and at night after the eruption of baby teeth also may be associated with BBTD (Valaitis, Hesch, Passarelli, Sheehan, & Sinton, 2000). Conversely, breastfeeding exclusively for at least four to six months may decrease the risk of BBTD for infants. Breastfeeding rates for First Nations mothers have been consistently lower than rates for the general Canadian population, although evidence also suggests that First Nations mothers who do breastfeed do so for a longer period of time (FNIGC, 2005). In RHS 2002/03, 62.5% of children were breastfed compared to 79.9% reported for the general Canadian population (FNIGC, 2005). Of the children who were breastfed, 43.3% were breastfed for more than six months. In contrast, among infants from the general Canadian population, 34.0% were breastfed for more than six months (FNIGC, 2005). Studies on whether breastfeeding is likely to reduce BBTD have proven inconclusive, partly because there are too few exclusively breastfed children, which prevents an adequate study of breastfeeding as a preventive factor for BBTD.

BBTD is especially prevalent in First Nations children due in part to poor socio-economic conditions, food insecurity, malnutrition, and lack of water fluoridation in First Nations communities. Epidemiologic studies conducted in the last decade showed Aboriginal children ages 3 to 5 years as having three to five times the amount of tooth decay as other children of similar ages in Canada (Albert, Cantin, Cross, & Castaldi, 1988; Department of Community Dentistry, Faculty of Dentistry, University of Toronto and National School of Dental Therapy, 1992; Harrison & Davis, 1993; Houde, Gagnon, & St-Germain, 1991; Lawrence et al., 2004; Lawrence et al., 2009; Leake, Jozzy, & Uswak, 2008; Pacey, Nancarrow, & Egeland, 2010; Peressini, Leake, Mayhall, Maar, & Trudeau, 2004a, 2004b; Saskatchewan Indian Federated College, National School of Dental Therapy, 2000; Schroth, Harrison, Lawrence, & Peressini, 2008; Schroth, Moore, & Brothwell, 2005; Schroth, Smith, Whalen, Lekic, & Moffatt, 2005;). BBTD adversely affects the quality of life of afflicted children, their families, and their communities. This chronic disease causes severe pain and interferes with the child’s ability to eat, play, learn, and sleep and may be associated with other chronic childhood conditions such as otitis media (Casamassimo, Thikkurissy, Edelstein, & Maiorini, 2009; Schroth, Harrison, & Moffatt, 2009). Low birth weight and asthma also have been associated with an increased risk of BBTD among First Nations children (Abi-Nahed, Binguis, & Lawrence, 2006; Burt & Pai, 2001). More recently, childhood obesity has been linked with high rates of dental caries (Marshall, Eichenberger-Gilmore, Broffitt,

Warren, & Levy, 2007). Obesity, in turn, is linked to a wide range of co-morbidities, including type 2 diabetes, which is prevalent among First Nations children and adults.

The economic consequences of BBTD and its treatment are significant (Casamassimo et al., 2009). As very young children cannot tolerate multiple tooth extractions and crowns in a regular office environment under local anesthetic, they require general anesthetic in a hospital setting. General anesthetic procedures for children up to and including 12 years of age are covered by the Non-Insured Health Benefits (NIHB) Program of Health Canada, though the financial costs of this care are high (Lemchuk-Favel, 2010; Milnes, Rubin, Karpa, & Tate, 1993). Overall, it is estimated that one in five First Nations or Inuit children from birth to 4 years of age (19.9%) who received NIHB services in 2008–09 underwent general anesthetic to treat BBTD (Lemchuk-Favel, 2010). NIHB expenditures related to general anesthetic services totaled \$8.48 million in 2008–09, excluding the costs of medical transportation to and from remote communities (Lemchuk-Favel, 2010). In 2008–09, the total federal dental transportation cost was \$2.5 million (Lemchuk-Favel, 2010).

This chapter presents information on the rates and determinants of dental care utilization among First Nations children 11 years of age or younger, the prevalence of BBTD and its association with breastfeeding or bottle-feeding practices, and the dental treatment needs of this cohort as reported by parents or caregivers who participated in RHS 2008/10. Results are often presented in relation to the findings of RHS 2002/03 to examine trends in access to dental care, BBTD experience, and perceived treatment needs.

METHODS

The oral health-related content of RHS 2008/10 was sourced from the previous RHS and collected information on the topics of access to dental care, primary caregiver perceptions of child dental treatment needs, and BBTD experience. Parent and caregiver respondents were asked whether the child's teeth had ever been affected by BBTD and, if so, whether the child had been treated for the disease. New questions were also added in RHS 2008/10 to investigate breastfeeding behaviour and duration and bottle-feeding practices. Parents or primary caregivers were asked to describe the contents of their child's baby bottle (what they had "ever fed" the child with the bottle). Additionally, data on dental injuries were taken from the section of the questionnaire pertaining to physical injuries to provide an estimate of the prevalence of

caregiver-reported traumatic tooth injury to the primary or permanent teeth of children 11 years of age or younger.

These measures of children's oral health status and access to care were examined in relation to known health determinants and risk factors using a First Nations holistic framework provided by the RHS Cultural Framework (Dumont, 2005). Elements of the framework included caregiver's level of education, employment status, and relationship to the child; household crowding; language and culture; child's age, sex, education, performance at school, and personal wellness; child's health conditions and immunization history; dental history related to early childhood caries experience; diet and nutrition; birth weight and obesity.

Statistical Analyses

Descriptive and bivariate analyses were conducted. Statistical differences between proportions or the association between variables were assessed using 95% confidence intervals (CIs). Percentages reported are based on weighted data to represent the First Nations child population. In general, all reported results and associations are significant at $p < 0.05$ unless they are identified as a trend. The unweighted sample size is also provided in the tables and figures.

Comparisons to Other Data Sets

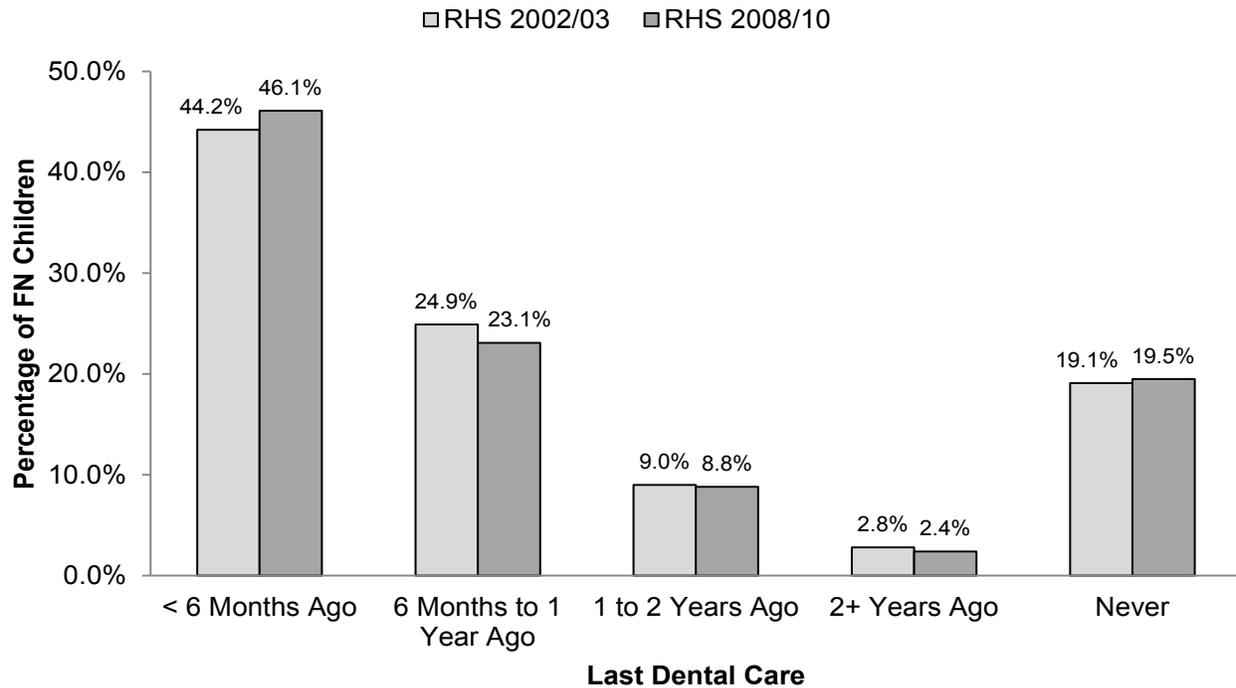
Results are compared to the findings of RHS 2002/03 for all children from birth to 11 years of age. When examining inequalities in dental care access between First Nations children and other children in Canada, comparisons to the general Canadian population were made using data from the Oral Health Module of the 2007–09 Canadian Health Measures Survey (CHMS) for the age group 6 to 11 years, as the CHMS did not collect data on children younger than 6 years old (Health Canada, 2010).

RESULTS

Access to Dental Care

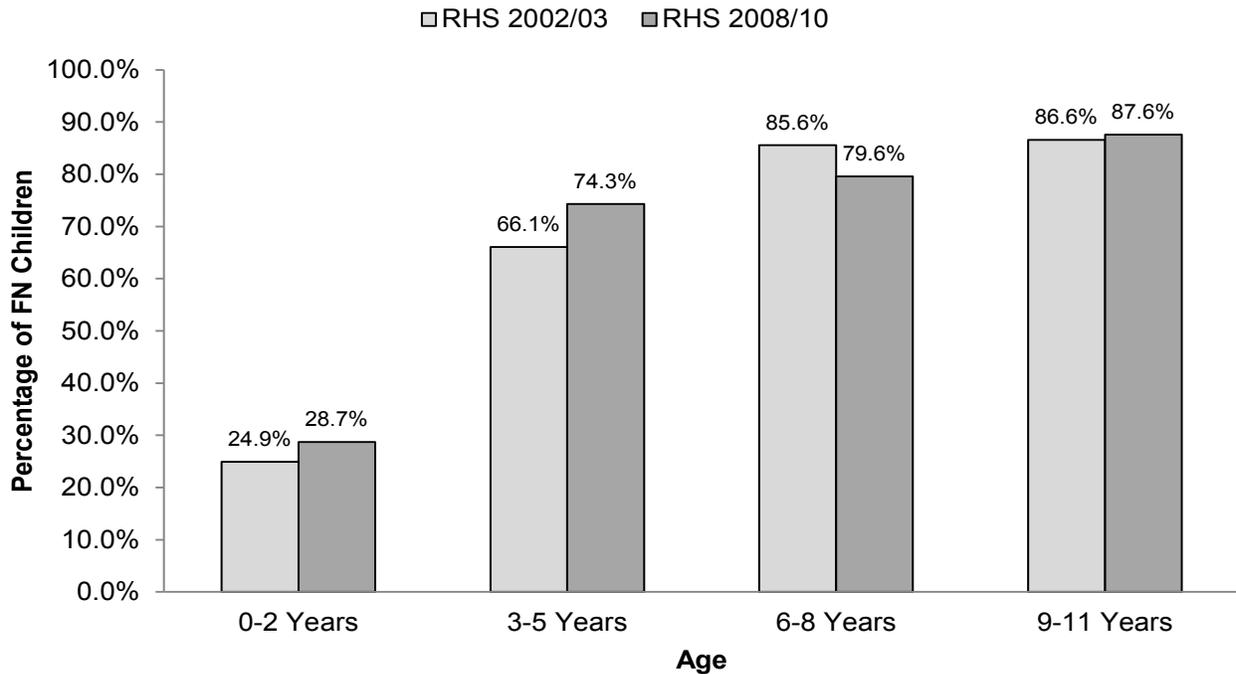
Overall, 69.2% of First Nations children under the age of 12 had dental care in the 12 months prior to the survey, with no significant difference between the sexes (68.3% males and 70.2% females). There were no significant differences between RHS 2002/03 and RHS 2008/10 in the relative distribution of First Nations children by the last time dental care was obtained (see Figure 34.1).

Figure 34.1. Percentage Distribution of First Nations Children from Birth to Age 11, by Last Time Dental Care was Obtained, in RHS 2002/03 (n = 6,268) and RHS 2008/10 (n = 5,706)



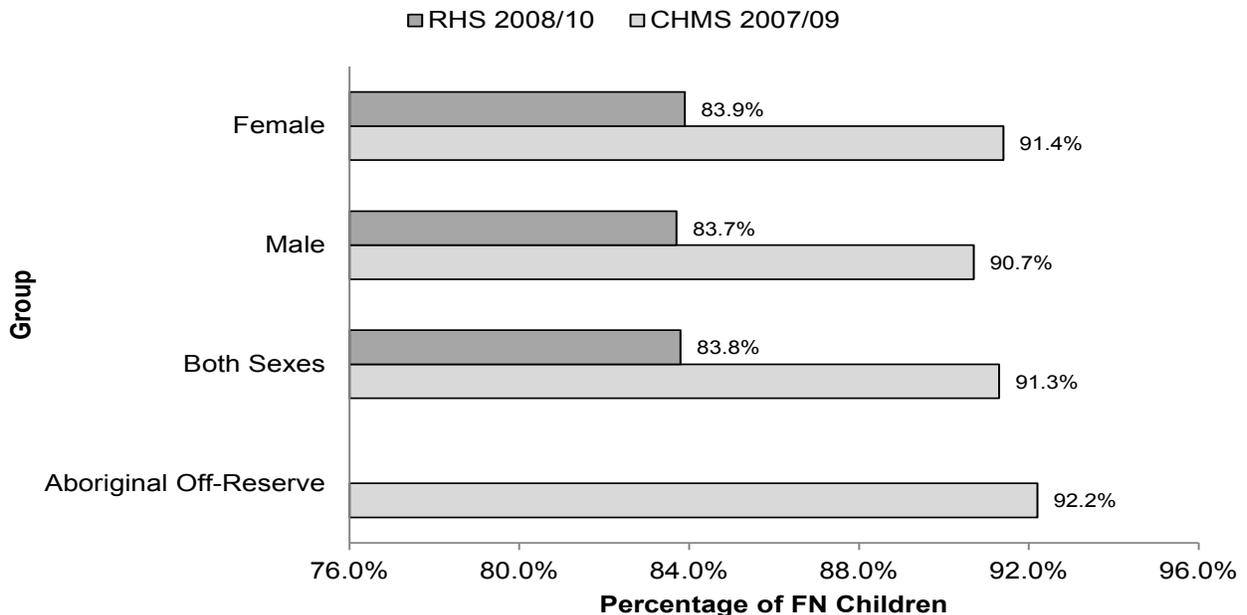
Age differences were observed in access to dental care, in that a higher proportion of children aged 9 to 11 years (87.6%) obtained dental care in the year prior to the survey than children aged 6 to 8 years (79.6%), followed by preschool-aged children (3 to 5 years; 74.3%) and then infants (0 to 2 years; 28.7%; see Figure 34.2). Similar results among age groups were observed in RHS 2002/03; however, there were some slight differences within age groups with rates of access to dental care increasing for children under the age of 6, yet decreasing for children aged 6 to 8 years between the two surveys (FNIGC, 2005). For example, 66.1% of children aged 3 to 5 years in RHS 2002/03 received dental care in the 12 months prior to the survey compared to 74.3% in RHS 2008/10 (FNIGC, 2005).

Figure 34.2. Percentage of First Nations Children Receiving any Dental Care in the 12 Months prior to the Survey, by Age, in RHS 2002/03 (n = 6,268) and RHS 2008/10 (n = 5,699)



Among First Nations children aged 6 to 11 years, 83.8% received dental care in the year prior to the survey with no difference between males and females (see Figure 34.3). This percentage is lower than the equivalent finding for non-Aboriginal peers and for Aboriginal children living off-reserve (91.3% and 92.2%, respectively; [Health Canada, 2010]).

Figure 34.3. Percentage of Children aged (6 to 11 years) Receiving any Dental Care in the 12 Months prior to the Survey in the CHMS 2007–09 (unweighted n = 1,070; weighted n = 2,160.4) and RHS 2008/10 (unweighted n = 3,098)



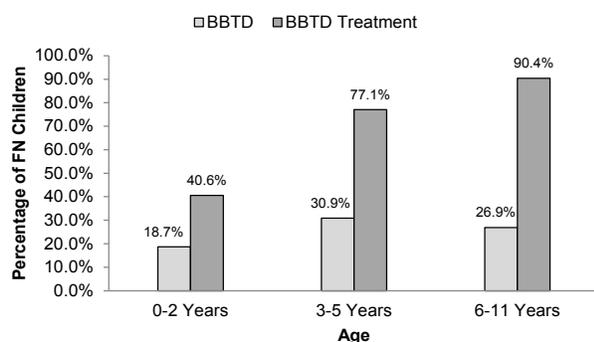
*Non-Aboriginal Canadians aged 6 to 11 years (CHMS 2007–09; unweighted n = 1,033; weighted n = 2,062.4)

In exploring predictors of dental care utilization (see Table 34.A1 in the appendix), higher proportions of use were found among children from families with higher parental education; those whose mother or guardian currently worked for pay; children who could understand or speak a First Nations language, who had attended an Aboriginal Head Start program, or who had repeated a grade; those who suffered from asthma, diabetes, a heart condition, or ear infection; and those who had been affected by BBTd. Other socio-cultural and lifestyle factors that were associated with higher percentages of use of dental care included sharing traditional foods with others in the household, having an emotional or behavioural problem, or having a mother who percentages of dental care utilization were found among children whose primary caregiver was a step-parent (47.8%), those who never ate a nutritious, balanced diet (23.7%) but never or hardly ever drank soft drinks (57.8%) or ate sweets (54.9%). Similarly low percentages were seen among those who did not receive routine vaccinations (42.7%).

Baby Bottle Tooth Decay

The prevalence of BBTd was high in First Nations children (see Figure 34.4). Among infants from birth to age 2, 18.7% had teeth affected by BBTd, compared to 11.9% in RHS 2002/03; however, no difference in the prevalence of BBTd among children aged 3 to 5 years was observed since the last RHS (30.9% in RHS 2008/10 vs. 29.4% in RHS 2002/03 [FNIGC, 2005]). Among children aged 6 to 11 years, 26.9% had a history of BBTd, but the vast majority (90.4%) had been treated for the condition. BBTd prevalence estimates for children aged 6 to 11 years were not reported in RHS 2002/03. Of the infants with BBTd, 40.6% were treated for the condition, compared to 27.4% in RHS 2002/03, while over three-quarters of preschoolers (77.1%) were also treated for BBTd, compared to 67.4% in RHS 2002/03 (FNIGC, 2005).

Figure 34.4. Proportion of First Nations Children Affected By and Treated for BBTd as Reported by Primary Caregivers, by Age (unweighted *n* = 5,667)



The proportion of children with BBTd was lower among those who were fed breast milk in their baby bottles than among those who were not fed breast milk in their bottles (see Table 34.1). In contrast, giving 100% fruit juices, canned milk, iron-fortified formula, tea (possibly sweetened), soft drinks, or powdered drinks in their baby bottles was associated with a higher prevalence of BBTd (see Table 34.1). For example, among children given soft drinks in their bottles, the proportion with BBTd was nearly twice as high as the proportion with BBTd among those who were not given soft drinks (51.3% vs. 27.6%). Similarly, among children who were bottle-fed Kool-Aid and other powdered drinks, the proportion with BBTd was twice as high as the proportion with BBTd among those who were not (47.7% vs. 24.4%).

Table 34.1. Content of Baby Bottle as Reported by Primary Caregiver and Risk Ratio for BBTd among First Nations Children (*n* = 4,903)

Content	% with BBTd among those fed [95% CI]	% with BBTd among those not fed [95% CI]
Breast milk	23.5 [19.3, 28.2]	30.2 [28.1, 32.5]
Powdered milk	24.1 [18.5, 30.7]	28.8 [26.6, 31.0]
Regular formula	26.8 [24.0, 29.8]	29.9 [27.4, 32.6]
Water	27.1 [24.4, 29.9]	30.0 [27.1, 33.2]
Milk	27.5 [24.9, 30.2]	29.6 [26.7, 32.7]
Soy milk	28.4 [21.5, 36.5]	28.5 [26.3, 30.8]
100% fruit juices	33.0 [29.6, 36.6]	25.9 [23.6, 28.3]
Canned milk	37.0 [31.7, 42.7]	27.5 [25.3, 29.9]
Iron-fortified formula	32.2 [29.5, 35.0]	23.8 [21.0, 26.9]
Tea	45.0 [37.3, 53.0]	27.5 [25.4, 29.6]
Soft drinks	51.3 [42.0, 60.5]	27.6 [25.4, 29.9]
Kool-Aid and other powdered drinks	47.7 [42.0, 53.5]	24.4 [22.5, 26.4]

*Significant at *p* < 0.05

On average, First Nations children were breastfed for 9.2 months (95% CI [8.7, 9.8]). Breastfeeding was associated with a decrease in the prevalence of BBTd, albeit the result was not statistically significant (see Table 34.2). In addition, an association was observed between the

duration of breastfeeding and the prevalence of BBTD; among children who were breastfed for more than six months, 20.7% were affected by BBTD, compared to 28.8% of those who were breastfed for less than 12 weeks (see Table 34.2). Bottle-feeding, on the other hand, was significantly associated with an increased incidence of BBTD; the proportion of bottle-fed children with BBTD was 2.7 times higher than the proportion of children with BBTD who were not bottle-fed. Similarly, a significantly higher proportion of obese children (33.7%) than of overweight children (24.9%) or underweight or normal weight children (23.2%) experienced BBTD. Lastly, a significant health determinant for BBTD was household

crowding; children living in crowded homes were more likely to be affected by BBTD than were those in homes that were not crowded (30.3% vs. 23.1%). Children’s sex and birth weight were not found to be associated with BBTD.

Dental Injuries

Traumatic dental injuries were not prevalent in this child population, as only 2.7%E (95% CI [1.7, 4.3]) of children under age 12 (3.0%E of children aged 6 to 11 years, 95% CI [1.7, 5.5]) suffered trauma to the oral region in the 12 months prior to the survey, which had not changed since RHS 2002/03 (FNIGC, 2005).

Table 34.2. Risk of BBTD as Reported by Primary Caregivers among First Nations Children Living in First Nations Communities, by Selected Determinants of Health

Health determinant (unweighted <i>n</i>)	BBTD	
	Wtd %	95% CI
All (5,674)	26.1	[24.2, 28.1]
Female (2,850)	26.7	[24.1, 29.4]
Male (2,821)	25.6	[23.4, 27.9]
Breast-fed		
No (2,432)	28.9	[26.5, 31.5]
Yes (3,158)	24.3	[21.8, 27.1]
Duration of breastfeeding		
Less than 12 weeks (667)	28.8	[23.1, 35.3]
3 to 6 months (1,094)	26.6	[22.9, 30.6]
More than 6 months (1,361)	20.7	[17.2, 24.8]
Bottle-fed		
No (726)	10.7	[8.0, 14.2]
Yes (4,907)	28.5	[26.4, 30.7]
Birth weight (BW)		
Low BW (261)	27.3	[21.6, 33.9]
Normal BW (4035)	26.7	[24.5, 29.1]
High BW (1054)	25.3	[20.9, 30.2]
Body Mass Index (BMI)		
Obese (1,876)	33.	[29.3, 37.8]
Overweight (902)	24.1	[21.2, 27.3]
Normal/underweight (1,720)	22.9	[20.0, 25.9]
Household crowding		
Not crowded [\leq 1 person/room] (3,811)	23.1	[20.9, 25.4]
Crowded [$>$ 1 person/room] (1,807)	30.3	[27.5, 33.3]

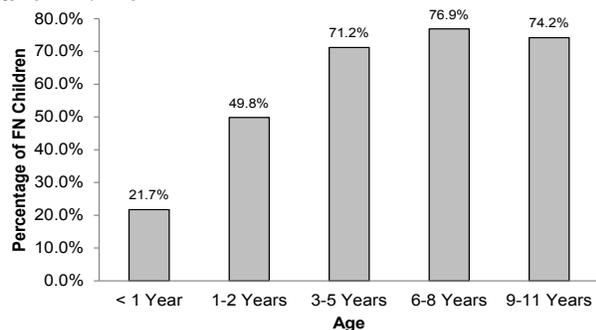
*Significant at $p < 0.05$

Caregivers’ Perceptions of Children’s Dental Treatment Needs

Dental care needs varied according to age, but 21.7% of First Nations children required some type of care before their first birthday (see Figure 34.5). The percentage of dental care needs rose to 49.8% for children aged 1 to 2

years, 71.2% for those aged 3 to 5 years, 76.9% for those aged 6 to 8 years, and 74.2% for children aged 9 to 11 years.

Figure 34.5. Distribution of First Nations Children Requiring Dental Care According to Primary Caregivers' Perceptions, by Age (n = 5,866)



Furthermore, since RHS 2002/03, dental treatment needs have increased among First Nations children for dental fillings; checkups; preventive care, such as fluoride treatment; and surgical procedures, such as tooth extraction (see Table 34.3). Nearly 65.0% of children required regular maintenance, and 37.3% needed dental fillings, compared to 42.7% and 26.9%, respectively, in RHS 2002/03 (FNIGC, 2005). Overall, 23.2% and 10.5% of children were in need of fluoride treatment and tooth extraction in RHS 2008/10. Particularly with respect to perceived need for fluoride treatment and tooth extraction, these proportions are larger compared to the RHS 2002/03 data (12.4% and 7.0%, respectively [FNIGC, 2005]).

Table 34.3. Proportion of First Nations Children from Birth to Age 11 with Dental Treatment Needs According to Primary Caregiver Perceptions in RHS 2002/03 (n = 6,286) and RHS 2008/10 (n = 3,927)

Type of dental treatment required*	RHS 2002/03 %	RHS 2008/10 % [95% CI]
Restorative (e.g., cavities filled, crowns, bridges)	26.9	37.3 [35.1, 39.6]
Maintenance (e.g., checkups or teeth cleaning)	42.7	64.9 [62.6, 67.0]
Dental extractions	7.0	10.5 [9.2, 11.9]
Fluoride treatment	12.4	23.2 [21.2, 25.4]
Periodontics (gum care)	---****	0.6 ^E [0.4, 0.9]
Prosthodontics (e.g., dentures, including repair and maintenance)	---****	0.5 ^E [0.3, 0.8]
Orthodontics (e.g., braces)	5.2	5.1 [4.2, 6.3]
Urgent care (dental problems requiring immediate attention)	2.0	2.5 [1.8, 3.4]

*Multiple treatments accepted

****Information not available in RHS 2002/03 report

^E Interpret with caution (high sampling variability; coefficient of variation 16.6% to 33.3%)

When the results for the different types of dental treatment were broken down by age and gender, no significant gender differences were found for any type of treatment, except for orthodontic needs. In this regard, a higher proportion of females required braces than males (6.6% vs. 3.6%, 95% CIs [5.0, 8.6] and [2.7, 4.8], respectively). Moreover, because orthodontic treatment is normally initiated at 11 or 12 years of age, those who needed orthodontics the most were girls aged 9 to 11 years (17.7%), compared to 10.5% for boys of the same age (95% CIs [13.3, 23.1] and [8.0, 13.8], respectively).

Table 34.4 presents results by age group and RHS survey. The table first shows that oral health care needs have noticeably increased in the period between the two surveys, regardless of age group. Second, two findings stand out—the high proportions of children aged 6 to 11 years in need of restorative and maintenance care, and, among very young children aged 1 to 2 years, the 13.3% who required tooth extractions and the 21.4% who required restorative treatment. Lastly, just under one-quarter of primary caregivers reported that their children needed fluoride treatment, regardless of the child's age.

Additionally, only 24.5% (95% CI [22.2, 26.9]) of children aged 6 to 11 years in RHS 2008/10 had no treatment needs, compared to 75.9% of children in the same age group in the 2007–09 CHMS, though the latter percentage reflects clinically assessed dental needs (Health Canada, 2010).

Table 34.4. Proportion of First Nations Children with Dental Treatment Needs According to Primary Caregivers' Perceptions in RHS 2002/03 (n = 6,286) and RHS 2008/10 (n = 3,927), by Age

Type of dental treatment required*	Age Group			
	0–2 yrs	3–5 yrs	6–8 yrs	9–11 yrs
	% [95% CI]	% [95% CI]	% [95% CI]	% [95% CI]
Restorative (e.g., cavities filled) RHS 2002–03 RHS 2008/10	9.5 21.4 [17.0, 26.5]	28.4 36.2 [31.8, 40.8]	35.4 41.9 [38.4, 45.6]	29.6 41.9 [38.2, 45.6]
Maintenance (e.g., checkups or teeth cleaning) RHS 2002/03 RHS 2008/10	30.4 51.7 [46.4, 56.8]	45.9 60.0 [55.2, 64.6]	41.7 70.1 [67.0, 73.0]	52.1 71.1 [67.1, 74.8]
Dental extractions RHS 2002/03 RHS 2008/10	3.9 13.3 [10.3, 17.1]	8.0 12.8 [9.8, 16.5]	9.6 10.1 [8.3, 12.3]	5.6 7.5 [6.0, 9.3]
Fluoride treatment RHS 2002/03 RHS 2008/10	5.3 23.3 [18.4, 28.9]	11.2 22.7 [18.6, 27.5]	16.8 24.7 [21.6, 28.1]	14.6 21.6 [18.5, 25.0]
Orthodontics (e.g., braces) RHS 2002/03 RHS 2008/10	F 0	F F	3.8 2.7 ^E [1.7, 4.5]	13.9 14.3 [11.6, 17.4]
Urgent care RHS 2002/03 RHS 2008/10	F 2.2 ^E [1.2, 4.0]	3.2 3.9 ^E [2.0, 7.4]	F 1.7 ^E [1.1, 2.7]	F 2.1 ^E [1.4, 3.4]

*Multiple treatments accepted

CI = Confidence Interval (not available in the 2002/03RHS Report)

F = Data suppressed due to insufficient sample size or extreme sampling variability

E Interpret with caution (high sampling variability; coefficient of variation 16.6% to 33.3%)

DISCUSSION

Survey results showed that 69.2% of First Nations children from birth to the age of 11 years had had dental care in the 12 months prior to RHS 2008/10. The highest rate (87.6%) was among children aged 9 to 11 years at, followed by 79.6% of children aged 6 to 8 years, 74.3% of those aged 3 to 5 years, and 28.6% of children aged 2 years or younger. Compared to the findings of RHS 2002/03, utilization rates have increased for infants and preschoolers, but slightly decreased or stayed the same for the other age groups. Nevertheless, the lower rates of oral health care utilization among preschool children and infants should be of concern and made a policy priority in the near future. It is possible that many First Nations parents and caregivers do not perceive the importance of keeping their baby's teeth healthy as they "fall out anyway" (Schroth, Smith, et al., 2005). This perception can delay the first dental visit, ultimately requiring dental surgery when BBTD, along with its accompanying suffering and anxiety, is diagnosed. Many First Nations infants and preschoolers require one or more general anesthesia procedures for dental surgery, which can contribute to the extended wait times for pediatric dental surgery across Canada (Schroth & Smith, 2007; Wright & Menaker, 2011).

Although the oral health care system for First Nations in Canada aims to meet the dental needs of its clients, the results of this survey show that significant disparities still exist. Comparisons with the findings of the 2007–09 CHMS revealed that while 83.8% of First Nations children aged 6 to 11 years received dental care in the year prior to RHS 2008/10, 91.3% of their peers in the general Canadian population and 92.2% of Aboriginal children living off-reserve received dental care in the year prior to the CHMS (Health Canada, 2010). First Nations children seem to have more dental treatment needs than children in the general Canadian population. Three-quarters of First Nations children aged 6 to 11 years had treatment needs compared to one in four children of the same age who received an oral examination as part of the 2007–09 CHMS (Health Canada, 2010). Although the RHS does not collect clinical data, as it relies on the parents' or primary caregivers' reports for the measurement of dental needs, it provides culturally appropriate and scientifically valid information for children under the age of 12 living in First Nations communities who can be monitored over consecutive surveys. Since RHS 2002/03, dental treatment needs have increased among First Nations children for dental fillings, checkups, and preventive

care, such as fluoride treatment, as well as for surgical procedures, such as tooth extractions. On an even more serious note, among children aged 1 to 2 years, 21.4% required restorative treatment, 23.3% needed fluoride treatment, and 13.3% already had teeth to be extracted because of dental caries. These rates are much higher than those reported in RHS 2002/03 (see Table 34.4).

A consequence of access-to-care problems experienced by young First Nations children is the need for premature extraction of primary teeth. Teeth become at risk of dental decay as soon as they erupt in the mouth. Primary teeth, also known as deciduous or baby teeth, start to erupt at about six months of age. Between the ages of about 6 and 11 years, children lose their primary teeth and gain their permanent teeth. Poor oral health and poor access to dental care among young First Nations children are associated with increased rates of dental treatment under general anesthesia and greater risk of malocclusion (crowding or crooked teeth) in the permanent dentition (Harrison & Davis, 1996). Primary teeth provide a guide for the positioning of the permanent teeth in adolescence (Harrison & Davis, 1996). Decay and premature extractions of primary teeth may explain why 14.3% of First Nations children aged 9 to 11 years—a greater proportion than among children of the same age in the general Canadian population—require orthodontic care as perceived by their primary caregivers in RHS 2008/10.

In response to the serious oral health needs of First Nations and Inuit children, Health Canada introduced the Children's Oral Health Initiative (COHI) in 2004 (Lawrence, 2010; Lemchuk-Favel, 2010). The initiative involves dental screenings conducted by oral health care providers, recommended activities to prevent oral disease among infants and toddlers, fluoride varnish applications for young children, and treatment to deal with existing disease. First Nations and Inuit communities administer the program themselves through contribution agreements with the federal government. Services are mainly provided by community-based COHI aides who are supervised by dental hygienists and therapists. The introduction of the COHI to supplement Primary Health Care and Public Health dental providers in First Nations communities has increased access to dental hygiene, oral health promotion, and treatment services for children. The increased access to care made available through COHI may explain the higher proportions of parents and caregivers reporting dental care for their children under 6 years of age in RHS 2008/10 than in RHS 2002/03. Access to COHI services could also explain the higher rates of treatment of BBTD in these same age groups compared to the earlier RHS results. Although COHI

might have increased access to dental care in some areas of the country for children from birth to 4 years of age and schoolchildren aged 5 to 7 years, the prevalence of needs remains high, with 30.9% of First Nations children aged 3 to 5 years and 18.7% of those aged 2 years or younger affected by BBTD in RHS 2008/10, compared to 29.4% and 11.9%, respectively, in RHS 2002/03.

Community members, researchers, and policy-makers are particularly concerned about the increasing prevalence of BBTD among Aboriginal children in Canada (Schroth et al., 2008). BBTD is a multifactorial disease that requires innovative means of prevention and treatment. There is hope that new indigenous-specific oral health preventive interventions will alleviate the burden of BBTD in First Nations communities. At present, there have been encouraging results from a small number of intervention studies undertaken in Aboriginal communities that demonstrated successful outcomes, such as reductions in caries rates and improvements in caregivers' knowledge about BBTD and the means of preventing the disease. The interventions include community-based oral health promotion programs targeted at prenatal women and nursing mothers that attempt to decrease the social acceptance of prolonged bottle-feeding by tailoring interventions to the cultural beliefs of the community so as to make people more receptive to behavioural change (Harrison, MacNab, Duffy, & Benton, 2006; Harrison & White, 1997; Lawrence et al., 2004). Some of these programs are integrated with existing health services, such as well-child care or prenatal nutrition programs (Harrison et al., 2006; Lawrence et al., 2004). Fluoride varnish community trials carried out in Canada and Australia have shown that the topical application of the varnish to baby teeth, which requires minimal training, is a safe, simple, and low-cost solution to the problem of BBTD among indigenous people in both countries (Lawrence et al., 2008; Slade et al., 2011). More recently, a caries trial in remote Cree communities in Quebec concluded that preventive counseling using a motivational interviewing approach beginning in pregnancy may help to control caries in the early childhood years of Cree children (Harrison, Veronneau, & Leroux, 2010; Veronneau & Harrison, 2011).

Our results suggest measures that might reduce BBTD risk, such as promoting breastfeeding for six months or more and reducing bottle feeding with sugary drinks, the worst being soft drinks and powdered drink mixes. Simple interventions targeting the availability of sweetened beverages reduced high tooth decay trends and were found both feasible and acceptable among American Indian communities in the Pacific Northwest

(Maupomé et al., 2010). These simple measures would not only reduce BBTD but also prevent childhood obesity as both BBTD and obesity are diet-related diseases (Sheiham & Watt, 2000). In this RHS, obese children were significantly more likely than overweight and normal or underweight children to be at risk of BBTD. Furthermore, medical providers treating First Nations patients must discuss oral health with new mothers and educate them on the important role they play in keeping their babies' teeth healthy. Unfortunately, research has shown that while the majority of pediatricians and family physicians in Canada include aspects of oral health in well-child visits, these health professionals also reported a lack of dental knowledge and training (Prakash et al., 2006). This deficiency in training serves as yet another barrier to care and limits some physicians from playing a more active role in promoting the oral health of their young patients (Prakash et al., 2006). To counteract this problem, the Canadian Dental Association recommends that children visit the dentist within six months of the eruption of the first tooth or by one year of age (Canadian Dental Association, 2005). Although the outcome of the one-year dental visit has the potential to improve the oral health of the youngest and most vulnerable in our society, research also has shown that many Canadian dentists are unaware of this recommendation and they do not see children until they are three years of age (Stijacic, Schroth, & Lawrence, 2008).

Nonetheless, it will be difficult to dramatically alter the barriers to care and the high treatment needs of First Nations children without also making improvements to the economic circumstances and the living conditions in First Nations communities. Household crowding, a problem found in First Nations communities across Canada, can be counted among the potential risk factors for BBTD in this survey. Moreover, caregiver's level of education and employment status, child's ability to understand or speak a First Nations language, and child's level of education, performance at school, personal wellness and early life experiences, as well as health conditions and immunization history, dental history related to early childhood caries experience, dietary habits and nutrition were all correlates of dental care utilization in the year prior to the survey. A poor diet, consisting of sugary or refined, starchy Western foods, as opposed to a diet of traditional foods common to First Nations, signaled the need for dental care in this survey. Food security in First Nations communities, that is, the availability of healthy food choices such as fruits, vegetables, and whole and multigrain breads at affordable prices, will go a long way toward helping reduce oral

disease and dental treatment needs. Therefore, there must be the political will and the economic incentives to make a balanced diet available to everyone in First Nations communities. Our results point to the importance of strategies tailored to the social determinants of health, as "changing people's behaviours requires changing their environment" (Sheiham et al., 2011).

CONCLUSIONS

This survey found differences in past-year access to dental care between First Nations children aged 6 to 11 years and their counterparts in the general Canadian population. Access to dental services has increased for children aged 5 years or younger, but they experienced more baby bottle tooth decay than the previous cohort of children who participated in RHS 2002/03. Parent- or caregiver-reported dental treatment needs also have increased significantly since RHS 2002/03 for older children, and as the findings in this chapter suggest, dietary habits of First Nations children continue to put them at greater risk for tooth decay and obesity. The apparent success of the Children's Oral Health Initiative and other oral health programs may raise overall dental awareness among parents and caregivers and, more specifically, draw attention to the dental needs of their young children. In future, this awareness may well translate into more reports of dental care needs, but it is also hoped that there will be concomitant reductions in tooth decay among First Nations children. Although the success of specific preventive programs to reduce tooth decay among First Nations children living on-reserve and in northern communities is encouraging, policy-makers and program planners should be more proactive in addressing the needs of young First Nations Canadians. Present approaches to reducing oral disease and oral health inequalities must be directed at determinants of chronic health conditions, be they behavioural, social, or economic in nature.

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APPENDIX

Table 34.A1. Percentage of First Nations Children from Birth to Age 11 Years Receiving any Dental Care in the 12 Months prior to RHS 2008/10, by Selected Determinants of Health

Health determinant (unweighted <i>n</i>)	Dental care in the 12 months prior to the survey	
	Wtd %	95% CI
All (5,706)	69.2	[67.2, 71.1]
Respondent's relationship to the child		
Birth parent (5,103)	69.3	[67.2, 71.3]
Step parent, including common-law step parent (33)	47.8 E	[31.9, 64.1]
Adoptive parent (68)	74.7	[62.4, 84.1]
Foster parent (55)	82.2	[65.5, 91.8]
Grandparent (307)	67.0	[59.7, 73.5]
Sister or brother (24)	86.1	[52.1, 97.2]
Other (82)	74.3	[61.1, 84.2]
Mother (or guardian) highest level of formal schooling		
Self-reported not applicable (141)	68.9	[60.2, 76.5]
Some elementary school (127)	60.4	[50.4, 69.6]
Elementary school (153)	54.4	[44.1, 64.4]
Some high school (2,318)	63.7	[60.6, 66.7]
High school diploma (1,423)	72.5	[68.6, 76.1]
Trade/vocational school diploma/certificate (286)	74.7	[63.6, 83.3]
Community college/CEGEP diploma/certificate (824)	77.6	[74.3, 80.6]
University Degree (259)	80.1	[73.6, 85.3]
Masters Degree (28)	80.9	[65.4, 90.5]
Earned Doctorate (PhD)	F	
Professional Degree (48)	82.0	[57.6, 93.9]
Father (or guardian) highest level of formal schooling		
Self-reported not applicable (593)	72.1	[67.8, 76.1]
Some elementary school (145)	64.3	[52.9, 74.2]
Elementary school (184)	60.5	[51.1, 69.2]
Some high school (2,287)	64.4	[61.0, 67.7]
High school diploma (1,049)	71.2	[67.5, 74.6]
Trade/vocational school diploma/certificate (411)	80.8	[75.3, 85.3]
Community college/CEGEP diploma/certificate (378)	73.3	[65.8, 79.6]
University Degree (118)	64.7	[51.8, 75.7]
Masters Degree (12)	81.8	[58.8, 93.4]
Earned Doctorate (PhD)	F	
Professional Degree (36)	85.7	[61.7, 95.7]
Mother (or guardian) currently working for pay		
No (2,873)	63.2	[60.4, 65.9]
Yes (2,445)	77.0	[74.6, 79.2]
Self-reported not applicable (166)	70.8	[63.0, 77.6]
Child speaks or understands a First Nations language		
No (2,828)	64.9	[62.0, 67.7]
Yes (2,706)	74.1	[71.7, 76.3]
Child has not attended an Aboriginal Head Start program (3,311)	62.8	[60.4, 65.1]
Child has attended an Aboriginal Head Start program (2,224)	79.7	[77.0, 82.2]
Child has never repeated a grade (5,199)	68.9	[66.7, 70.9]
Child has repeated a grade (372)	78.1	[73.1, 82.3]
Mother smoked during pregnancy		
No, did not smoke at all (3001)	71.5	[69.2, 73.8]
Yes, throughout the pregnancy (1,774)	64.8	[61.2, 69.1]
Yes, but quit in the 1 st trimester (422)	67.3	[59.6, 74.2]
Yes, but quit in the 2 nd trimester (170)	68.1	[59.1, 75.9]
Yes, but quit in the 3 rd trimester (82)	70.3	[54.8, 82.2]

Health determinant (unweighted <i>n</i>)	Dental care in the 12 months prior to the survey	
	Wtd %	95% CI
Child's Health Conditions:		
Asthma		
No (5,053)	68.0	[65.9, 70.1]
Yes (566)	78.1	[73.2, 82.3]
Takes Asthma drugs		
No (5,165)	68.4	[66.3, 70.5]
Yes (541)	75.8	[70.5, 80.4]
Diabetes		
No (5,399)	69.1	[67.0, 71.0]
Yes (9)	98.4	[92.1, 99.7]
Heart condition		
No (5,290)	68.9	[67.0, 70.8]
Yes (83)	82.7	[71.7, 90.0]
Ear infection		
No (5,207)	64.4	[61.5, 67.2]
Yes (362)	72.3	[69.4, 75.0]
Vaccinations/Immunizations		
No (139)	40.2	[31.6, 49.5]
Yes (5,514)	69.9	[67.9, 71.9]
Baby Bottle Tooth Decay (BBTD)		
No (4,368)	66.7	[64.5, 68.8]
Yes (1,176)	75.6	[72.0, 79.0]
Eats a nutritious balanced diet		
Always/almost always (3,437)	70.0	[67.5, 72.4]
Sometimes (1,983)	72.0	[69.4, 74.4]
Rarely (188)	55.9	[47.1, 64.4]
Never (50)	23.7 E	[14.4, 36.4]
Frequency of consumption of soft drinks/pop		
Several times a day (494)	74.0	[69.0, 78.5]
Once a day (703)	74.8	[70.4, 78.7]
A few times a week (1,406)	78.0	[74.5, 81.1]
About once a week (941)	74.4	[70.8, 77.7]
Never/hardly ever (2,058)	57.8	[54.4, 61.0]
Frequency of consumption of sweets (e.g. candy, cookies, cake)		
Several times a day (381)	76.2	[70.2, 81.3]
Once a day (780)	73.9	[69.4, 78.0]
A few times a week (1,840)	76.1	[72.9, 79.0]
About once a week (1,282)	70.6	[67.1, 73.9]
Never/hardly ever (1,305)	54.9	[50.6, 59.2]
Frequency of traditional foods in the household in the past 12 months		
Often (1,682)	71.4	[67.8, 74.7]
Sometimes (2,997)	69.4	[66.7, 71.9]
Never (828)	63.3	[59.1, 67.4]
Emotional/behavioural problems during the past 6 months		
No (4,742)	69.2	[67.2, 71.0]
Yes (684)	78.4	[75.0, 81.5]

CI = Confidence interval

E = Interpret with caution (high sampling variability; coefficient of variation 16.6% to 33.3%)

F = Data suppressed due to insufficient sample size or extreme sampling variability

Chapter 35

Injury

EXECUTIVE SUMMARY

Childhood injury constitutes a great burden to families the world over. In 2004 alone, approximately 950,000 children and youth from birth to 17 years of age died as a result of their injuries worldwide. Injuries, as a result of any of a long list of adverse physical events, are the leading cause of death and second leading cause of potential years of life lost among children in the general Canadian population. Compared to only 6% of deaths in the general Canadian population, more than one-quarter (26%) of all deaths among First Nations occurred due to injury. As in the general Canadian population, injuries are the leading cause of death among First Nations children. The First Nations Regional Health Survey (RHS) 2008/10 asked the primary caregivers of First Nations children from birth to 11 years of age living on-reserve and in northern First Nations communities to report whether their child had been injured in the 12 months prior to the survey. Additionally, a series of questions regarding the characteristics of the child's injuries were posed. Of all First Nations children, 12.2% (95% CI [10.9, 13.6]) were reported to have been injured in the 12 months prior to the survey. The most common types of injury were minor cuts, scrapes, or bruises; broken or fractured bones; and major sprain or strain. A significant association was found between the occurrence of injury and the level of a child's physical activity, whether the child got along with the rest of the family, and whether the child had more emotional or behavioural problems than other children of the same age.

KEY FINDINGS

- In the RHS 2008/10, 12.2% (95% CI [10.9, 13.6]) of all First Nations children were reported to have been injured in the 12 months prior to the survey.
- The three most common types of injuries reported were minor cuts, scrapes, or bruises; broken or fractured bones; and major sprains or strains.
- The most common body parts that First Nations children were reported to have injured were the head, legs, and knees.
- The places at which First Nations children were reported to have been injured most often were the home; school; and street, highway, or sidewalk.
- The most common causes of injury reported by the primary caregivers of First Nations children were experiencing a fall, accidental contact with another person or animal, and riding a bike.
- Of those First Nations children who were reported to have been injured, medical treatment for their injury was received most often at the hospital emergency room, at home, or at a community health centre.
- A higher proportion of First Nations children were injured who:
 - were active;
 - got along with the rest of the family “not too well, lots of difficulty” during the six months prior to the survey;
 - had more emotional or behavioural problems than other children of the same age during the six months prior to the survey.

INTRODUCTION

Childhood injury constitutes a great burden to families the world over. In 2004 alone, approximately 950,000 children and youth from birth to 17 years of age died as a result of their injuries (World Health Organization [WHO] & UNICEF, 2008). Among these cases, approximately 90% were due to unintentional injuries, including traffic injuries, drownings, poisonings, burns, and falls (WHO, 2008). Road traffic injuries and drownings, the two most common causes of death due to injury, were among the top 10 leading causes of death in children aged 1 to 14 years in 2004. In fact, road traffic injuries were the second leading cause of death overall in children aged 5 to 14 years, behind only lower respiratory infections (WHO, 2008). Additionally, children/youth aged 19 years or younger who live in low-income and middle-income countries experience injury at a rate much higher than those in high-income countries (41.7 per 100,000 persons vs. 12.2 per 100,000 persons).

Among children who survive their injuries, hospitalization is a common result. Tens of millions of children are hospitalized for their injuries every year, with some ending up permanently disabled (WHO & UNICEF, 2008). Road traffic injuries, the most common type of injury among children aged 1 to 14 years, were also among the top 10 leading causes of disability-adjusted life years in 2004 (WHO, 2008).

In 2005–06, Canadians aged 19 years or younger experienced almost 30,000 hospitalizations as a result of injury (Public Health Agency of Canada [PHAC], 2009). Injuries are the leading cause of death and second leading cause of potential years of life lost among children in the general Canadian population. In 2005, 720 Canadians aged 19 years or younger died as a result of their injuries (PHAC, 2009). Injuries occurred most often as a result of road traffic accidents, at a rate more than six times that of any other type of injury, while secondary causes included drowning; fire or contact with a hot object or substance (e.g., house fire, being burned by a stove or hot liquid); suffocation; poisonings; and falls (PHAC, 2009). In the general Canadian population, children aged 9 years or younger accounted for just under one-quarter of all injuries (23%), with children aged 10 to 14 years accounting for a further 13% (PHAC, 2009). Infants under a year old, accounting for 4% of all injuries, suffered the second highest rate of death as a result of unintentional injury at 8.5 deaths per 100,000 persons, behind only youth aged 15 to 19, whose rate was 21.0 deaths per 100,000 persons (PHAC, 2009).

Compared to only 6% of deaths in the general Canadian population, more than one-quarter (26%) of all deaths among First Nations people occurred due to injury (Health Canada, 2008). Similar to the situation in the general Canadian population, injuries are the leading cause of death among First Nations children (First Nations and Inuit Children and Youth Injury Indicators Working Group, 2010).

Using data collected by the RHS 2008/10, this chapter explores the rate at which First Nations children from birth to 11 years of age living in First Nations communities experience injuries. Additionally, the chapter examines the types of injuries that occurred, where they occurred, what First Nations children were doing when they were injured, the causes of injury, where medical treatment for injuries was acquired, and whether physical activity and personal wellness were associated with the occurrence of injuries.

METHODS

The RHS 2008/10 asked the primary caregivers of First Nations children from birth to 11 years of age living in First Nations communities to report whether their child had been injured in the 12 months prior to the survey. Additionally, a series of questions regarding the characteristics of the injuries were posed:

- What type of injury(ies) did the child have?
- What part(s) of the child's body was injured?
- Where did the injury(ies) occur?
- What was the child doing when the injury(ies) occurred?
- What caused the injury(ies)?
- Where did the child get medical treatment for your injury(ies)?

The association between injury variables and other pertinent variables included in the RHS 2008/10 (level of physical activity, quality of relationship with family members, and presence of emotional or behavioural problems) was also assessed.

Level of physical activity was based on total energy expenditure (EE), calculated using the following formula:

$$EE = \sum(N_i * D_i * MET_i / 365 \text{ days})$$

N_i = number of occasions of activity i in a year,
 D_i = average duration in hours of activity i , and
 MET_i = a constant value for the metabolic energy cost of activity i .

Frequency and duration of physical activities were reported for the 12 months prior to the survey, and the metabolic equivalent value (MET value) of each activity was independently established (Ainsworth et al., 2000). For this analysis, First Nations children with energy expenditures of less than 1.5 kcal/kg/day were considered to be inactive; those with energy expenditures between 1.5 kcal/kg/day and 2.9 kcal/kg/day were considered to be moderately active; and those with energy expenditures of 3 kcal/kg/day or greater were considered to be active. Note: Physical activity scores are calculated only for those 6 years of age and older (n = 3184). Thus, any associations between physical activity and other variables will be representative of those children 6 years of age and up.

Quality of relationship with family members was assessed by asking parents/guardians, “During the past 6 months, how well has the child gotten along with the rest of the family?” Response options were: ‘very well, no difficulties’, ‘quite well, hardly any difficulties’, ‘not too well, lots of difficulties’, and ‘not at all well, constant difficulties’. Note: The above data are calculated only for those 3 years of age and older (n = 4639). Thus, any associations between relationship with family members and other variables will be representative of children 3 years of age and up.

Emotional and behavioural problems were assessed by asking parents/guardians. “During the past 6 months, do you think the child has had more emotional or behavioural problems than other boys or girls of his/her age?” (response options: yes/no). Note: The above data are calculated only for those 3 years of age and older (n = 4639). Thus, any associations between emotional/behavioural problems and other variables will be representative of children 3 years of age and up.

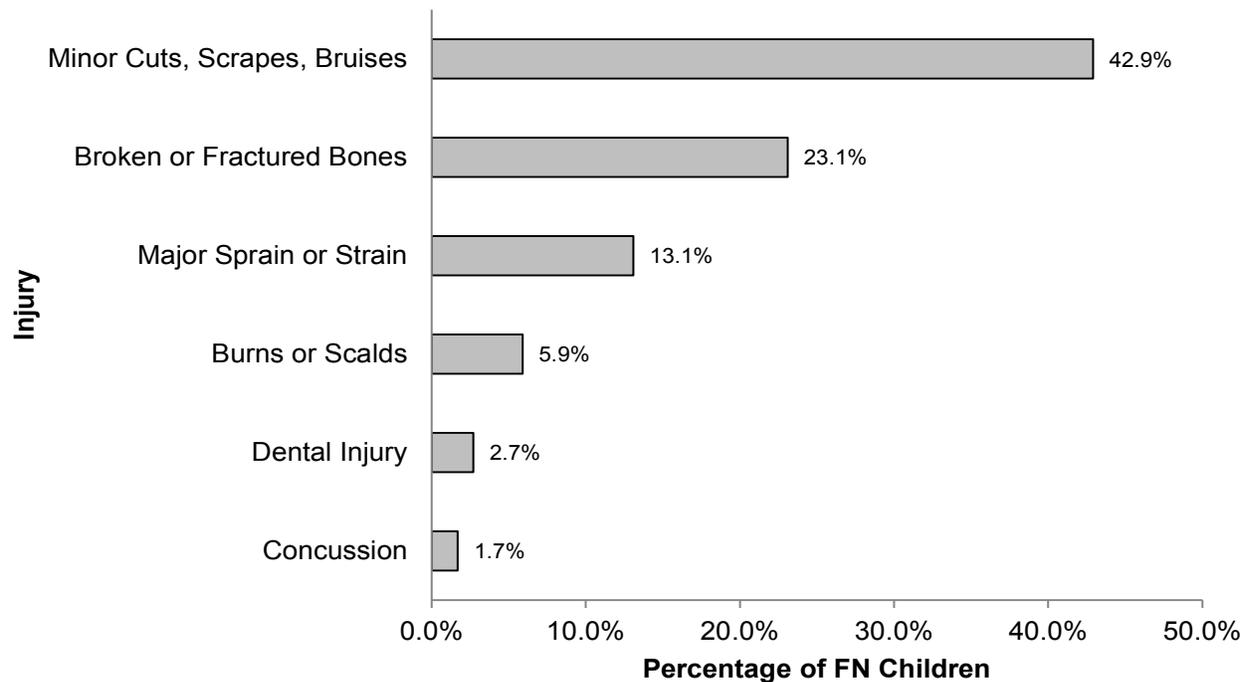
RESULTS

In the RHS 2008/10, 12.2% (95% CI [10.9, 13.6]) of all First Nations children (aged 11 years or younger) were reported to have been injured in the 12 months prior to the survey. This proportion suggested a decrease than that reported in the RHS 2002/03, when 17.5% of all First Nations children were reported to have been injured (First Nations Information Governance Committee, 2005).¹ The proportion of First Nations girls who were reported to have been injured in the 12 months prior to the RHS 2008/10 was not significantly different than the

proportion of First Nations boys who were reported to have been injured in the same period (10.6% vs. 13.6%, 95% CIs [9.0, 12.5] and [11.8, 15.7], respectively). Similarly, the proportion of preschool-aged First Nations children (aged 5 years or younger) who were reported to have been injured in the 12 months prior to the survey did not differ from the proportion of school-aged First Nations children (aged 6 to 11 years) (10.4% vs. 13.6%, 95% CIs [8.7, 12.4] and [11.8, 15.5], respectively).

The three most common types of injuries reported were minor cuts, scrapes, or bruises (45.1%); broken or fractured bones (23.1%); and major sprain or strain (13.1%). The proportions of injuries reported did not vary significantly by gender. School-aged First Nations children (aged 6 to 11 years) were reported to have experienced major sprains or strains significantly more often than preschool-aged First Nations children (aged 5 years or younger) (18.5% vs. 5.9%, 95% CIs [13.5, 24.8] and [3.5, 9.9], respectively). Figure 35.1 demonstrates the percentage of First Nations children reported to have been injured, by type of injury.

¹ The 2008/10 RHS asked whether the child had been “injured in the past 12 months”, whereas the 2002/03 RHS asked whether the child had been “seriously injured enough to require medical attention in the past 12 months”. Due to inconsistency in question wording, comparisons between the two RHS phases should be interpreted with caution.

Figure 35.1. Percentage of First Nations Children who were Reported to have been Injured, by Type of Injury (n = 648)

Note. "Dislocation," "Hypothermia or frostbite," "Repetitive strain," "Poisoning" and "Injury to internal organ" categories suppressed due to high sampling variability.

E High sampling variability. Use figure with caution.

The most common body parts that First Nations children were reported to have injured were the head (21.4%), legs (18.2%), and knees (17.9%). No gender differences were observed in body parts injured. Preschool-aged First Nations children (aged 5 years or younger) were reported to have injured their head significantly more often than school-aged First Nations children (aged 6 to 11 years) (28.4% vs. 14.4%, 95% CIs [21.5, 36.6] and [10.9, 18.9], respectively). In contrast, school-aged First Nations children (aged 6 to 11 years) were reported to have injured their hand and ankle significantly more often than preschool-aged First Nations children (aged 5 years or younger) (hand: 24.5% vs. 9.1%^E, 95% CIs [18.9, 31.1] and [5.8, 14.2], respectively; ankle: 15.6% vs. 2.6%^E, 95% CIs [11.2, 21.3] and [1.5, 4.5], respectively). Table 35.1 shows the percentage of First Nations children who were reported to have been injured, by part of the body injured.

Table 35.1. Percentage of First Nations Children who were Reported to have been Injured, by Body Part Injured (n = 648)

Body part	Percentage	95% CI
Head	21.4	[17.4, 26.0]
Leg	18.2	[14.4, 22.7]
Knee	17.9	[14.0, 22.5]
Hand	17.8	[13.8, 22.7]
Arm	17.5	[14.0, 21.6]
Foot	14.1	[9.9, 19.7]
Wrist	10.2	[6.9, 14.8]
Ankle	10.1	[7.4, 13.6]
Torso	2.7 ^E	[1.6, 4.4]
Eye(s)	0.9 ^E	[0.5, 1.7]

^E High sampling variability; use figure with caution.

The places at which First Nations children were reported to have been injured most often were the home; school; and street, highway, or sidewalk. Locations at which injuries occurred did not vary significantly by gender. However, preschool-aged First Nations children (aged 5 years or younger) were reported to have been injured at home significantly more often than school-aged First Nations children (aged 6 to 11 years) (73.8% vs. 45.7%, 95% CIs [66.3, 80.1] and [38.4, 53.1], respectively). In

contrast, school-aged First Nations (aged 6 to 11 years) children were reported to have been injured at school, and sports fields or facilities of school significantly more often than preschool-aged First Nations children (aged 5 years or younger) (school: 22.5% vs. 8.7%^E, 95% CIs [17.5, 28.5] and [5.8, 12.8]; sports fields or school facilities: 20.0% vs. 2.6%^E, 95% CIs [15.2, 25.9] and [1.5, 4.5], respectively). Table 35.2 shows the percentage of First Nations children who were reported to have been injured, by where the injury occurred.

Table 35.2. Percentage of First Nations Children who were Reported to have been Injured, by Where the Injury Occurred (n = 648)

Location	%	(95% CI)
Home	58.0	[52.2, 63.6]
School, college, or university	16.5	[13.2, 20.5]
Street, highway, or sidewalk	13.3	[10.7, 16.5]
Sports fields or facilities of schools	12.6	[9.6, 16.3]
Countryside, forest, or woodlot	5.6 ^E	[3.9, 8.1]
Community buildings (community centre or band office)	4.1 ^E	[2.5, 6.9]
Lake, river, or ocean	F	--
Industrial or construction area	F	--
Office	F	--

^E High sampling variability; use figure with caution.
^F = Estimate not provided because of high sampling variability and/or small sample size.

Of those First Nations children who were reported to have been injured, more than one-third (37.7%, 95% CI [32.3, 43.4]) were reported to have been injured while they were participating in a leisure activity or hobby. Approximately one-third (33.4%, 95% CI [28.8, 38.3]) of all First Nations children were reported to have been injured while participating in sports or physical exercise. Additionally, First Nations children were reported to have been injured traveling to and from school (3.0%^E, 95% CI [1.9, 4.9]).

The most common causes of injury reported by the primary caregivers of First Nations children were falls (52.0%), accidental contact with another person or animal (14.3%), and riding a bike (10.5%). The proportions of the type of injury did not vary significantly by gender. School-aged First Nations children (aged 6 to 11 years) were reported to have been injured while riding a bike significantly more often than pre-school-aged First Nations children (aged 5 years or younger) (14.2% vs. 5.7%^E, 95% CIs [10.7, 18.7] and [3.4, 9.2], respectively). Table 35.3 shows the percentage of First Nations children who were reported to have been injured, by cause of injury.

Table 35.3. Percentage of First Nations Children who were Reported to have been Injured, by Cause of Injury (n = 648)

Cause of Injury	Percentage	95% CI
Fall	52.0	[46.5, 57.5]
Accidental contact with another person or animal	14.3	[10.7, 18.7]
Riding a bike	10.5	[8.2, 13.3]
Contact with a machine, tool, etc.	2.3 ^E	[1.3, 4.2]
Contact with a hot liquid or object, etc.	2.2 ^E	[1.0, 4.7]
Overexertion or strenuous movement	1.4 ^E	[0.8, 2.5]
Motor vehicle collision	1.3 ^E	[0.4, 3.9]
Other physical assault	1.2 ^E	[0.5, 2.6]
Smoke, fire, flames	1.0 ^E	[0.4, 2.4]
ATV collision	0.8 ^E	[0.3, 1.9]
Domestic or family violence	0.0	--
Suicide attempt or other self-inflicted injury	0.0	--
Snowmobile collision	F	--
Hunting accident	F	--
Boating accident	F	--
Extreme weather or natural disaster (i.e., flood)	F	--
Thin ice	F	--

^E High sampling variability; use figure with caution.
^F = Estimate not provided because of high sampling variability and/or small sample size.

Of those First Nations children who were reported to have been injured, medical treatment for their injury was received most often at the hospital emergency room (51.8%), at home (20.7%), or at a community health centre (14.5%). The places at which First Nations children were reported to have received medical treatment for their injury did not vary significantly by gender or age. Table 35.4 shows the percentage of First Nations children who were reported to have been injured, by where they received medical treatment for their injury. Additionally, 3.6%^E (95% CI [2.5, 5.1]) of First Nations children who were reported to have been injured were also reported not to have sought any medical treatment.

Table 35.4. Percentage of First Nations Children who were Reported to have been Injured, by Where They Received Medical Treatment (n = 648)

Location	Percentage	95% CI
Hospital emergency room	51.8	[45.8, 57.7]
At home	20.7	[16.7, 25.5]
Community health centre or nursing station	14.5	[11.1, 18.6]
Doctor's office	12.9	[9.4, 17.4]
Walk-in clinic	5.8 ^E	[4.1, 8.1]
At school	5.1	[3.7, 7.0]
At work	F	--
Traditional healer	F	--
By telephone	F	--

^E High sampling variability; use figure with caution.

^F = Estimate not provided because of high sampling variability or small sample size.

Physical Activity

A higher proportion of First Nations children who were categorized as “moderately active” to “active” were reported to have been injured 14.3% (95% CI [12.4, 16.5]), compared to those First Nations children who were categorized as “inactive” (8.5%, 95% CI [5.9, 12.2]).

Relation with Family

A lower proportion of First Nations children who were reported to have gotten along with the rest of the family during the six months prior to the survey “very well, no difficulties” were reported to have been injured in the 12 months prior to the survey, compared to those First Nations children who were reported to have gotten along with the rest of the family “not too well, lots of difficulties” during the six months prior to the survey (see Table 35.5).

Emotional or Behavioural Problems

A lower proportion of First Nations children who were reported to have had fewer emotional or behavioural problems than other children of their age during the six months prior to the survey were also reported to have been injured in the 12 months prior to the survey, compared to First Nations children who were reported to have had more emotional or behavioural problems than other children of their age during the previous six months (see Table 35.5).

Table 35.5. Percentage of First Nations Children who were Reported to have been Injured, by Various Characteristics

Characteristics of children		Percentage [95% CI]
Physical activity* (6 years and up)	Active	14.3 [12.4, 16.5]
	Inactive	8.5 [5.9, 12.2]
Relation with family* (3 years and up)	Gotten along with family “very well, no difficulties”	10.0 [8.4, 12.0]
	Gotten along with family “not too well, lots of difficulties”	16.0 [11.7, 21.5]
Emotional or behavioural problems (3 years and up)	Fewer emotional or behavioural problems than other children	12.4 [10.7, 14.2]
	More emotional or behavioural problems than other children	19.8 [16.2, 24.0]

*Statistically significant ($p < 0.05$)

DISCUSSION

The findings of the RHS 2008/10 indicate that 12.2% (95% CI [10.9, 13.6]) of all First Nations children from birth to 11 years of age were injured in the 12 months prior to the survey. This suggests a decrease in the prevalence of injuries since the RHS 2002/03 (17.5%; see Footnote 1).

As the findings of the RHS 2008/10 show, injuries are a common occurrence in the First Nations population. In particular, when a First Nations child experiences an injury, it is most often because of a fall or accidental contact with another person or animal, or while the child is riding a bicycle. Unintentional injuries, although preventable, by far contribute the largest proportion of total injuries that occur worldwide, accounting for approximately 3.5 million deaths annually and representing almost two-thirds of the total number of deaths that occur due to injury (Norton, Hyder, Bishai, & Peden, 2006). These injuries, which include motor vehicle accidents, poisonings, falls, fires, and drowning, result in the greatest burden to the health care system and, ultimately, human life itself.

Physical activity and personal wellness were both found to be associated with injury in First Nations children. First Nations children who were categorized as active demonstrated a significantly higher proportion of injury than those who were categorized as inactive. Additionally, First Nations children who were reported to have gotten along with the rest of the family “very well, no difficulties” during the six months prior to the survey demonstrated a significantly lower proportion of injury, and those who were reported to have had fewer emotional or behavioural

problems than other children of the same age during the six months prior to the survey also demonstrated a significantly lower proportion of injury. Improving the physical activity of First Nations children, especially since various traditional activities, such as hunting, fishing, and berry picking, have been replaced with modern conveniences, has become harder in today's world.

A particularly interesting subset of the child population is infants from birth to a year old. In the general Canadian population, infants one year old or younger accounted for 4% of all injuries and suffered the second highest rate of death as a result of unintentional injury, 8.5 deaths per 100,000 persons, behind only youth aged 15 to 19 years, for whom the rate was 21.0 deaths per 100,000 persons (PHAC, 2009). Though it would have been valuable to assess this subset within the RHS 2008/10, the proportion of First Nations infants that had been injured in the 12 months prior to the survey was too low to produce statistically meaningful results. Isolating this population in future studies could provide valuable insight into why the infant death rate as a result of unintentional injuries is so high. In turn, this information could be used to develop targeted injury prevention strategies, subsequently reducing the rate of injury among this subset of the population.

In response to the high burden that unintentional injuries create, particularly with children, legislation has been passed regarding many injury prevention strategies (WHO & UNICEF, 2008). Child restraints (Zaza et al., 2001), seatbelts (Dinh-Zarr et al., 2001), and bicycle helmets (Karkhanek, Kalenga, Hagel, & Rowe, 2006) have been deemed mandatory on roads; smoke alarms (DiGuseppi, Goss, & Higgins, 2001), hot water temperature regulations (MacArthur, 2003), and child-resistant items (Harborview Injury Prevention Research Centre, n.d.) have been deemed mandatory in the home; and fencing of swimming pools (Thompson & Rivara, 2000) and playground equipment safety regulations (WHO & UNICEF, 2008) have been deemed mandatory in the environment. The First Nations and Inuit Children and Youth Injury Indicators Working Group, supported by the British Columbia Injury Research and Prevention Unit, has undertaken a project to develop injury prevention indicators to monitor and evaluate the health of First Nations children and youth in order to assess and developed methods for injury prevention (First Nations and Inuit Children and Youth Injury Indicators Working Group, 2010).

Despite these advancements, work is still needed on injury prevention to improve the health and well-being of children. Consumer product hazards, including falls and strangulations from bunk beds, swallowing magnets, falls from baby walkers and trampolines, and drownings from bath seats, are all examples of incidents that can occur with typical household items (PHAC, 2009). Future legislation could lead to an improvement in unintentional injury rates if these consumer products contributed to a safer household environment for children. Since children, especially those who are preschool-aged, spend the majority of their time in the household, finding ways to improve household safety would have a dramatic effect on the health and well-being of these children.

CONCLUSIONS

First Nations people living on-reserve or in northern communities experience injuries at a much higher rate than the general Canadians population. Within this group, First Nations children are at a particularly high risk for injury. Research has demonstrated that long-term disability and death can result from an injury; therefore, reducing the proportion of First Nations children who become injured would contribute to improving quality of life and reducing mortality rates as well. As injury poses a significant problem for First Nations, specifically infants and school-aged children, intervention strategies that are implemented to keep First Nations children safe must continue to be developed and improved upon. By educating First Nations children at a young age about safe behavioural practices, their propensity to become injured will ultimately decrease. Only by proactively attempting to prevent injuries before they occur can we confidently improve the health and well-being of our future generations.

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Chapter 36

Prenatal Health

EXECUTIVE SUMMARY

Mohawk elder and midwife Katsie Cook teaches about the need to “reawaken our women to the power that is inherent in that transformative process that birth should be.” Historically, First Nations families and communities prioritized the physical, mental, emotional, and spiritual needs of pregnant women and breastfeeding mothers. Our examination of the data from the First Nations Regional Health Survey (RHS) 2008/10 regarding prenatal and infant health data reveals that First Nations mothers and their infants living on-reserve or in northern communities are experiencing disproportionately high levels of poverty, household crowding, and multi-generational trauma, compared to the general Canadian population. Additionally, a lower proportion of First Nations mothers completed post-secondary education programs compared to mothers in the general Canadian population. First Nations infants continue to have a higher prevalence of high birth weight than infants in the general Canadian population. Smoking while pregnant is also quite high among First Nations mothers; 46.9% of First Nations mothers smoked during pregnancy. Maternal smoking during pregnancy is associated with poorer childhood health and school-age grade failure. In First Nations communities, maternal smoking was positively associated with poverty, decreased educational attainment, household crowding, and residence in a remote or isolated community. The proportion of First Nations mothers who breastfeed appears stable (around 60%), which is lower than the proportion of mothers who breastfeed in the general Canadian population (90% in 2006–07). For First Nations women who did breastfeed, the prevalence of sustained breastfeeding of six months or more was similar to that of mothers in the general Canadian population. The proportion of First Nations mothers who breastfed was lower among mothers less than 20 years of age, among mothers with lower personal income, and among mothers with lower educational achievement. These results clearly demonstrate that there is still much to be done in First Nations communities to ensure that pregnant women and mothers are supported and empowered in accordance with traditional cultural teachings.

KEY FINDINGS

- First Nations mothers and their children experience disproportionately high levels of poverty, household crowding, and multi-generational trauma, compared to mothers in the general Canadian population.
- Fewer First Nations mothers have completed post-secondary education compared to mothers in the general Canadian population.
- The prevalence of high birth weight is greater among First Nations infants (19.6%) than among infants in the general Canadian population (11.7%).
- The proportion of low birth weight among First Nations (4.7%) is similar to that among the general Canadian population (6.0%).
- Fewer First Nations children with low birth weight were reported to have good or excellent health compared to children with normal or high birth weight.
- Just under half (46.9%) of First Nations mothers smoked during pregnancy, while 40.0% of pregnant mothers lived in homes with another smoker.
- Maternal smoking during pregnancy was associated with poorer child general health and school failure.
- First Nations mothers who were experiencing poverty were at a higher risk for smoking during pregnancy.
- Poverty, lower levels of educational completion, household crowding, parent or grandparent residential school attendance, and living in a remote or isolated community were all positively associated with a higher prevalence of maternal smoking.
- The proportions of breastfeeding initiation and duration found in RHS 2008/10 were similar to those found in RHS 2002/03. According to RHS 2008/10, 60.2% First Nations mothers initiated breastfeeding, and of those, 44.8% continued to breastfeed for six months or more.
- First Nations communities have not experienced the same increases in breastfeeding initiation that have been documented over the past decade in the general Canadian population. For First Nations women who did initiate breastfeeding, the number who breastfed for six months or more was similar to that in the general Canadian population.
- The proportion of mothers who breastfed was lower among those who were under the age of 20 years, who had lower educational achievement, and who had an annual household income of less than \$15,000.

Our grandmas tell us we're the first environment, that our babies inside of our bodies see through the mother's eyes and hear through the mother's ears. Our bodies as women are the first environment of the baby coming, and the responsibility of that is such that we need to reawaken our women to the power that is inherent in that transformative process that birth should be.

—Wessman & Harvey, 2000

INTRODUCTION

The health of infants in First Nations communities is understood to be an important and upstream measure of the health of the overall First Nations population. Infant health measures are also closely linked to social determinants of health, such as poverty, employment, education, housing, and food security (Reidpath & Allotey, 2003). For many First Nations peoples, infants are regarded as sacred gifts from the Creator (Aboriginal Healing and Wellness Strategy, 2009).

The questions in RHS 2008/10 regarding birth weight, prenatal smoke exposure, breastfeeding, parent-rated child health, school performance, and child health conditions provide a unique opportunity to better understand important health determinants and the ways they are linked. In this chapter, three very important prenatal and infant health determinants are in focus: birth weight, exposure of the unborn baby to smoke from the mother smoking or from other people in the household smoking, and breastfeeding rates. These are described using the RHS 2008/10 child survey results, and these results are compared with those of RHS 2002/03 (First Nations Information Governance Committee [FNIGC], 2005). Additionally, comparisons are made to findings for the general Canadian population using results from the Census of Canada (Statistics Canada, 2008, 2011), Statistics Canada Vital Statistics (Statistics Canada, 2009a), and two Canada wide surveys: the Maternity Experiences Survey—MES (Public Health Agency of Canada [PHAC], 2009)—and the National Longitudinal Survey of Children and Youth—NLSCY (Statistics Canada, 2003, 2009b).

Associations are explored between birth weight and a number of maternal, family, and community factors that could influence birth weight, including maternal and household smoking. Similarly, relationships between smoking and breastfeeding and maternal, family, and community factors are examined. Finally, relationships or connections among each of birth weight, prenatal smoke exposure, breastfeeding, parent-rated child health, child school performance,

and a number of child health conditions are explored.

The information collected by RHS 2008/10 regarding birth weight, prenatal smoke exposure, breastfeeding, and infant and child health is exclusive to First Nations people living in First Nations communities. The MES, which collected a rich sample of information regarding these topics for the general Canadian population, did not include First Nations persons living on-reserve and in northern communities.

Health workers and researchers consider birth weight to be an important measure of infant health, and birth weight is directly associated with the conditions that a baby is exposed to in the womb during pregnancy (Kramer, 1987). For example, maternal smoking during pregnancy lowers birth weight (Kramer, 1987), and a mother who has diabetes during pregnancy can increase birth weight (Schwartz & Taramo, 1999). Birth weight has also been linked to baby, child, and adult health (Barker, 1995; Barker et al., 1993; Kramer, 1987). Babies with a low birth weight (less than 2.5 kg) are at a higher risk of infections and are more likely to die in their first year of life (Kramer, 1987). This risk of adverse health can follow low birth weight babies into adulthood, putting them at a higher risk than normal birth weight babies for heart attack and diabetes (Barker, 1995; Barker et al., 1993). High birth weight (more than 4.0 kg at birth) has been linked to increased rates of injury during birth (Schwartz & Taramo, 1999) and to diabetes later on in life (Dyck, Klomp, & Tan, 2001). A recent study of First Nations babies in Quebec showed that babies in the top 10% of birth weight for gestational age may be more likely than normal weight babies to die in their first year of life (Wassimi, 2011).

The RHS 2002/03 child survey found that 5.5% of First Nations babies living in First Nations communities were of low birth weight and 21.0% were of high birth weight (FNIGC, 2005). The proportion of low birth weight babies among First Nations people was similar to that among the general Canadian population (Statistics Canada, 2003). In contrast, the proportion of high birth weight for First Nations babies (21%) was almost twice as high as that for the general Canadian population, which had a high birth weight rate of 13.1% according to the 2000–01 NLSCY (FNIGC, 2005; Statistics Canada, 2003).

The relatively higher proportion of infants with high birth weight in First Nations communities, compared to other populations, is of concern and raises questions for further investigation. The underlying reasons why First Nations infants have a higher percentage of high birth weight

than infants in the general Canadian population are not well understood. Links have been established between high birth weight and the relatively high rate of maternal diabetes in the First Nations population, compared to the general Canadian population (Whincup et al., 2008). A study in Quebec has recently identified a higher risk of infant death after one month of age (post-neonatal death) for large or macrosomic First Nations infants than for infants of normal birth weight (Wassimi, 2011).

Interpretation of the proportion of infants with low birth weight in First Nations communities is similarly challenging. In the general Canadian population, low birth weight is an important predictor of infantile health outcomes, such as infant mortality. For First Nations populations, the prevalence of low birth weight is similar to that in the general Canadian population, despite the fact that almost every other negative birth outcome, including infant mortality rates, demonstrates striking disparities when compared to the general Canadian population (Smylie, Crengle, Freemantle, & Taulii, 2010). It would therefore appear that low birth weight is not a good predictor of birth outcomes in First Nations populations. One thing that might assist further work in this area is having gestational age-specific birth weights. Pre-term birth is one of the main causes of low birth weight. If pre-term birth is less common in First Nations communities, this would result in lower rates of low birth weight, even if the babies were smaller for their gestational age than those in comparison populations.

For unborn babies, exposure to cigarette smoke can occur through the mother smoking during pregnancy (maternal smoke exposure) or through people smoking around the mother (environmental smoke exposure). Numerous chemicals in tobacco smoke are toxic to humans, and unborn babies are especially sensitive to these toxins. Cigarette smoke interferes with an unborn baby's ability to obtain oxygen and with the flow of blood to the placenta, causing the baby's heart rate and breathing rate to increase. The risks of cigarette smoke exposure during pregnancy continue throughout the whole pregnancy and are most severe during the third trimester (Public Health Service, 2001).

Mothers who smoke during pregnancy have a greater risk of miscarriage and birth complications (Smylie et al., 2010). Babies exposed to cigarette smoke during pregnancy are more than twice as likely as babies not exposed to cigarette smoke to grow poorly in the womb (Kramer, 1987). They are also much more likely to be born with a low birth weight and to die from sudden infant death syndrome (Kramer, 1987; Smylie et al.,

2010). The risks of cigarette smoke exposure during pregnancy follow babies into childhood. Children who were exposed to cigarette smoke in the womb tend to be shorter and to have more trouble with reading and math than other children (Kleinman & Madans, 1985).

The prevalence of cigarette smoking is much greater among First Nations people than among the general Canadian population. For example, RHS 2002/03 (FNIGC, 2005) found that 57.6% of First Nations adults over the age of 20 years smoked. This was more than double the 26.9% of adults in the general Canadian population who smoked (Statistics Canada, 2006). First Nations infants are also much more likely to be exposed to cigarette smoke in the womb than are other infants in Canada. The RHS 2002/03 found the prevalence of mothers "ever smoking" during pregnancy to be 36.6% (FNIGC, 2005), which was significantly higher than the general Canadian rate of 19.4% identified by the 2006–07 MES. The proportion of homes in which a pregnant woman and a cigarette smoker lived was also very high in First Nations communities according to RHS 2002/03—48.2%, or approximately one out of every two families (FNIGC, 2005). It is well known that cigarette smoking is associated with socio-economic stress and poverty (Haustein, 2006). A study in a rural First Nations community in British Columbia found rates of cigarette smoking were higher for those experiencing depression and lower for those with more social support (Daniel, Cargo, Lifshay, & Green, 2004). We will examine the associations between maternal, family, and community factors and maternal smoking.

Historically, in First Nations communities breastfeeding was universal and customary. Over the past several decades, Western biomedicine has come to realize what indigenous communities have known for thousands of years: breastfeeding provides optimal nutrition for infants and is beneficial to both mother and child. Health Canada and the World Health Organization currently recommend exclusive breastfeeding for the first six months of life (Health Canada, 2004). After six months, Health Canada recommends the introduction of nutrient-rich solid foods that include iron and ongoing breastfeeding for up to two years and beyond (Daniel et al., 2004).

Breastfeeding protects infants from intestinal and respiratory infections and strengthens the relationship between mother and infant (American Academy of Pediatrics, 2005; Canadian Paediatric Society, Dieticians of Canada, & Health Canada, 1998; Else-Quest, Hyde, & Clark, 2003; Kramer et al., 2001; Lawrence & Lawrence, 1999). Children who have been breastfed have been shown to do better on developmental tests than children

who have not been breastfed (Anderson, Johnstone, & Remley, 1999; Quinn et al., 2001). In First Nations communities, breastfed children have fewer ear and chest infections than children who have not been breastfed (Martens, 2002). Finally, mothers who breastfeed benefit by having a longer period between pregnancies, a quicker return to pre-pregnancy weight, and a reduced risk of ovarian cancer, compared to mothers who do not breastfeed (American Academy of Pediatrics, 2005; Canadian Paediatric Society et al., 1998).

The prevalence of breastfeeding initiation for First Nations mothers in RHS 2002/03 was 62.5%. This prevalence of breastfeeding initiation was modestly lower than the 79.9% for mothers in the general Canadian population reported by the 1998–99 NLSCY and higher than the 50% reported by the First Nations and Inuit Regional Longitudinal Health Survey in 1997 (First Nations and Inuit Regional Health Survey National Steering Committee, 1999). A greater proportion of First Nations women in RHS 2002/03 than of women in the general Canadian population sustained breastfeeding for at least six months or longer (43.3% vs. 34%). Data from the 2006 Aboriginal Children's Survey and the 2000–01 NLSCY showed similar findings of modestly lower breastfeeding initiation (69%) and higher sustained breastfeeding (48% at six months) for First Nations mothers living off-reserve, compared to the general Canadian population in 2000–01, wherein the percentage of breastfeeding initiation was 80% and the percentage of sustained breastfeeding at six months was 34% (McShane, Smylie, & Adomako, 2009). More recently, proportions of both breastfeeding initiation and duration have increased significantly for the general Canadian population. The 2006–07 MES reported the percentage of breastfeeding initiation to be 90% and the percentage of breastfeeding for six months or longer to be 54% (PHAC, 2009).

METHODS

In this chapter, responses of those who are the biological mother and primary caregiver were included since this data are assumed to be the most accurate [e.g., information on infants' birth weight, maternal behaviour during pregnancy (smoking) and after birth (breastfeeding)]. The chapter is organized into four sections, and within each there is focus on one main variable or set of variables: birth weight, maternal smoking during pregnancy, breastfeeding, and child health and developmental outcomes. Bivariate analyses between three groups of independent variables and the main variables (birth weight, maternal smoking during pregnancy, and breastfeeding) using the Rao-Scott Corrected Chi-

Square test (X^2) were conducted. The three groups of independent variables were maternal characteristics, including age and education level; family or household variables, including attendance at residential school, income, and crowding; and community characteristics, including size and remoteness. Understanding how these socio-economic factors are linked to the main variables can help to identify First Nations mothers or infants who may be more vulnerable or at risk. Bivariate analysis was also carried out to examine the associations between maternal smoking during pregnancy and birth weight, maternal smoking during breastfeeding, and birth weight and breastfeeding. Finally, birth weight, maternal smoking, and breastfeeding were examined for associations with child health outcomes, including general health, current health problems, and child school performance. The associations were considered significant if the *p* value was equal to or less than 0.05.

RESULTS

Distribution of Maternal, Family, and Community Variables

In this chapter, only data pertaining to biological mothers were explored. The distribution of maternal, family, and community characteristics are presented in Table 36.1.

Most mothers (76.0%) were between the ages of 20 and 34 years. Fewer than one in six (15.7%) were younger than 20 years old, but this is four times the proportion of mothers who have given birth under the age of 20 in the general Canadian population. The number of mothers over the age of 35 years who had given birth was 8.4%, which is less than half of the proportion (18%) of mothers who had given birth at age 35 years or older in the general Canadian population (Statistics Canada, 2009a).

Most First Nations mothers (74.6%) had an education level of high school or less, while 25.4% of all First Nations mothers had post-secondary education. Nearly half (43.2%) of First Nations children lived in households with an annual income of less than \$20,000, while only 13.5% had an annual income of more than \$50,000. More than three-quarters (76.6%) of all First Nations mothers reported that at least one of their parents or grandparents had attended a residential school. More than one-third (37.5%) of all First Nations children lived in crowded households, which are defined as homes with more than one person per room. Most First Nations mothers (93.5%) reported residing in communities of more than 300 people. More than one-third (36.7%) of all First Nations mothers reported that they lived in urban communities, while about

half (48.2%) lived in rural or semi-isolated communities, and the rest (15.1%) lived in remote communities.

First Nations mothers and their infants are challenged by disproportionately high levels of poverty, household crowding, and multi-generational trauma, compared to the general Canadian population. For example, the median total income for families in the general Canadian population in 2008 was \$68,860 (Statistics Canada, 2011), yet, in First Nations communities, close to half of the all mothers were trying to raise their children with household incomes that were under \$20,000. Overall, 38.0% of First Nations mothers lived in crowded households; that is more than 12 times the 3% figure for the general Canadian population (Statistics Canada, 2008). Additionally, First Nations mothers completed post-secondary education programs less often than mothers in the general Canadian population. For example, in a Quebec study (Luo, Wilkins, & Kramer, 2006), 71.6% of mothers had post-secondary education, which is approximately three times the number of First Nations mothers who reported having post-secondary education in RHS 2008/10.

Table 36.1. Distribution of Maternal, Family, and Community Characteristics

	%	95% CI
Maternal age at birth (<i>n</i> = 4,164)		
< 20 years	15.7	[±1.9]
20–34 years	76.0	[±1.9]
> 35 years	8.2	[±1.3]
Maternal education (<i>n</i> = 4,293)		
High school or less	74.6	[±2.2]
College, technical vocation	19.3	[±2.1]
University or higher degree	6.1	[±1.2]
Annual household income (<i>n</i> = 3,138)		
≤ \$10,000 or loss of income	19.4	[±2.3]
\$10,000–\$14,999	11.8	[±1.6]
\$15,000–\$19,999	12.0	[±2.2]
\$20,000–\$29,999	23.3	[±2.2]
\$30,000–\$49,999	20.0	[±2.0]
\$50,000–\$79,999	9.5	[±1.4]
> \$80,000	4.0	[±1.3]
Residential school (<i>n</i> = 3,758)		
Yes (at least one parent and/or grandparent)	76.6	[±2.4]
No	23.4	[±2.5]
Crowding household (<i>n</i> = 4,398)		
Not crowded	61.9	[±3.0]
Crowded	38.1	[±3.0]
Community size (<i>n</i> = 4,398)		
< 300	6.5	[±0.8]
301–1,499	49.1	[±3.0]
1,500 and over	44.4	[±3.1]
Remoteness / isolation (<i>n</i> = 4,398)		
Urban–not isolated	36.7	[±5.1]
Rural–semi Isolated	48.2	[±5.2]
Remote / special isolated	15.1	[±2.7]

Birth Weight

The mean birth weight reported in RHS 2008/10 was 3.62 kg (95% CI [3.59, 3.66]). Most infants (75.4%) had a normal birth weight of 2.51 kg to 4 kg. Low birth weight was found among 4.8% of infants, while 19.8% had a high birth weight (see Table 36.2). In 2007, the average birth weight for infants in the general Canadian population was 3.37 kg, while the proportion of infants with low birth weight was 6.0% and the rate of high birth weight was 11.7% (Statistics Canada, 2009a).

Table 36.2. Distribution of Birth Weight in RHS 2008/10 (n = 4,260) and 2002/03 (n = 4,836)

Birth weight categories	2008/10 % [95%CI]	2002/03 %
Low birth weight (0.4 kg–2.5 kg)	4.8 [±0.8]	5.6
Average birth weight (2.51 kg–4.0 kg)	75.4 [±1.9]	73.3
High birth weight (> 4.0 kg)	19.8 [±1.8]	21.1

No significant changes were observed in birth weight since the previous RHS 2002/03 (Table 36.2).

No significant association was found between children’s age and birth weight (see Table 36.3). These results were consistent with the results from RHS 2002/03. Overall, the negligible changes in birth weight distributions between RHS 2002/03 and RHS 2008/10, combined with the negligible change in birth weight distribution across age groups in both studies, demonstrate that the proportions of infants of low, normal, and high birth weight in First Nations communities have been relatively stable over recent years.

Table 36.3. Child’s Weight at Birth, by Child’s Current Age (n = 4,203)

Age group*	Low birth weight (0.4 kg–2.5 kg) %	Average birth weight (2.51 kg–4.0 kg) %	High birth weight (> 4.0 kg) %
0–2 years	5.7	74.2	20.2
3–5 years	6.0	75.3	18.7
6–8 years	3.8	74.8	21.4
9–11 years	3.6	77.3	19.0

Examining the associations between maternal, family, and community characteristics and birth weight (see Table 36.4), we found significant associations only with maternal age, maternal education, and family income. A greater proportion of First Nations mothers aged 35 years or older reported having low birth weight infants (8.4%); for those aged 21 to 34 years the proportion of mothers with low birth weight infants was 4.5%, and for those aged 20 years or younger it was 3.2%. This is consistent with the literature, where it is well documented that older mothers are at a higher risk of having low birth weight babies (Khoshnood, Wall, & Lee, 2005). First Nations mothers with an annual household income over \$50,000 had high rates of low birth weight babies and also the highest rates of high birth weight infants. This might

be linked to an association between higher income and advanced maternal age, requiring further investigation.

Table 36.4. Proportion of First Nations Mothers Reporting Low, Normal, and High Birth Weight Infants, by Maternal and Family Characteristics

	Low (0.4 kg - 2.5kg)	Average (2.51 kg - 4.0kg)	High (> 4.0 kg)
Maternal age at birth* (n = 3,998)			
< 20 years	3.4 ^E	79.9	16.8
20–34 years	4.5	74.6	20.9
> 35 years	8.4 ^E	70.6	21.0
Maternal education** (n = 4,115)			
High school or less	5.1	76.3	18.7
College, technical vocation	4.3 ^E	71.3	24.4
University or higher degree	3.6 ^E	74.4	22.0 ^E
Annual household income*** (n = 3,035)			
≤ \$10,000 or income loss	3.7 ^E	79.1	17.1
\$10,000–\$14,999	5.5 ^E	78.0	16.5
\$15,000–\$19,999	3.4 ^E	79.0	17.6
\$20,000–\$29,999	5.6 ^E	72.3	22.2
\$30,000–\$49,999	2.9 ^E	74.2	22.9
\$50,000–\$79,999	6.2 ^E	69.0	24.9
> \$80,000 and over	2.1 ^E	72.3	25.6

^E High sampling variability; interpret figure with caution.

Smoking during Pregnancy

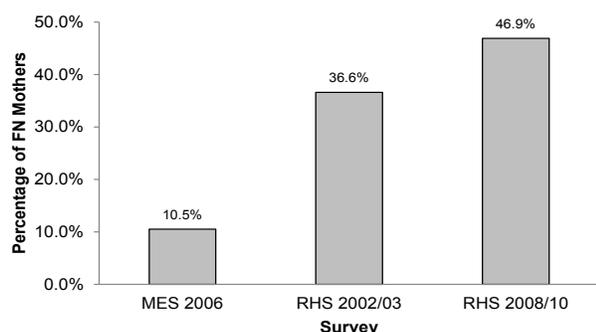
The proportion of First Nations mothers who reported that they had ever smoked during pregnancy was 46.9%. This was significantly higher than the proportion found in RHS 2002/03 (36.6%; see Table 36.5). In both RHS 2002/03 and RHS 2008/10, the proportion of First Nations mothers who reported that they had ever smoked during pregnancy was higher than the 10.5% reported in the MES in 2006 (PHAC, 2009); see Figure 36.1. Among First Nations mothers who smoked, almost half reported smoking daily, while the other half reported smoking only occasionally. Exposure of the unborn infant to environmental smoke was also high, with 40.0% of First Nations mothers reporting that other smokers lived in their household during their pregnancy (see Table 36.5).

Table 36.5. Maternal and Environmental Smoke Exposure During Pregnancy

	%	95% CI
Mother smoked during pregnancy (n = 4,305)		
No, never smoked during pregnancy	53.1	[±2.4]
Yes, did smoke during pregnancy	46.9	[±2.4]
Yes, smoked throughout the pregnancy	32.7	[±2.2]
Yes, but quit in the 1 st semester	9.2	[±1.5]
Yes, but quit in the 2 nd semester	3.6	[±0.9]
Yes, but quit in the 3 rd semester	1.4 ^E	[±0.5]
Frequency of smoking during pregnancy (n = 1,870)		
Daily	51.0	[±3.4]
Occasionally	49.0	[±3.5]
Others smoked in the household while the mother was pregnant (n = 4,313)		
No	60.0	[±2.4]
Yes	40.0	[±2.5]

^E High sampling variability; interpret figure with caution.

Figure 36.1. Proportions of Mothers who Ever Smoked During Pregnancy in RHS 2002/03, MES 2006, and RHS 2008/10



Child Birth Weight and Maternal Smoking

Table 36.6 presents the distribution of First Nations infants’ birth weights by prevalence of smoking during pregnancy. From this data, it appears that maternal smoking is not significantly associated with low birth weight. This is not consistent with the literature or with the results of RHS 2002/03, which found that maternal smoking was linked to a higher proportion of low birth weight infants. The absence of this association may be due to other factors, such as mothers’ nutrition or physical activity, that might be confounding or modifying the relationship between smoking and low birth weight. It may also be because there were many low birth weight babies in this sample. There does appear to be an association between high birth weight and maternal smoking. Mothers who smoked during pregnancy reported lower percentages of

high birth weight infants than did mothers who did not smoke during pregnancy. This indicates that smoking may still be restricting fetal growth.

It appears that the prevalence of maternal smoking and environmental smoke exposure are relatively high in First Nations communities. Although the association between maternal smoking and low birth weight is not clear in this specific study, we can safely conclude based on the existing literature that exposure to cigarette smoke is still very harmful for unborn infants. Policy-makers and health program planners need to be aware of these results and translate them into policies and programs that reduce smoking among First Nations mothers and their families.

Table 36.6. Child’s Birth Weight, by Maternal Smoking During Pregnancy and Others Smoking in the Household

	Low (0.4 kg–2.5 kg) %	Average (2.51 kg–4.0 kg) %	High (>4.0 kg) %
Mother smoked during pregnancy (n = 4,134)*			
No, did not smoke at all	4.8	71.2	23.9
Yes, smoked ever during pregnancy	4.7	80.1	15.1
Yes, smoked throughout pregnancy	4.7*	81.0	14.3
Yes, but quit in the 1 st trimester	4.5 ^E	79.6	15.9
Yes, but quit in the 2 nd trimester	4.8 ^E	76.6	18.5 ^E
Yes, but quit in the 3 rd trimester	F	70.4	21.4 ^E
Frequency of smoking during pregnancy (n = 2,291)**			
Daily	4.2	83.4	12.4
Occasionally	5.2	76.7	18.1
Others smoked in the household while the mother was pregnant (n = 5,299)***			
No	4.6	75.3	20.1
Yes	5.1	75.4	19.4

^E High sampling variability; interpret figure with caution.

^F Suppressed due to low cell count (n < 5) or very high sampling variability (CV > .333).

Table 36.7 demonstrates that maternal smoking during pregnancy was consistently associated with all maternal, family, and community characteristics, excluding community size. The proportion of First Nations mothers who smoked decreased as highest level of educational achievement and income increased. A higher proportion of mothers smoked who had at least one parent or grandparent who had attended residential school. Household

crowding was also associated with higher prevalence of smoking; 42.5% of First Nations mothers who lived in crowded homes reported smoking, compared to 33.4% of First Nations mothers who lived in non-crowded homes.

Table 36.7: Proportion of First Nations Mothers who Smoked During Pregnancy, by Maternal, Family, and Community Characteristics

Smoking during pregnancy		
	No %	Yes %
Maternal age at birth* (n = 4,081)		
< 20 years	49.1	50.9
20–34 years	53.3	46.7
> 35 years	58.9	41.1
Maternal education** (n = 4,206)		
High school or less	48.6	51.4
College, technical, vocation	57.9	42.1
University or higher degree	84.1	15.9 ^E
Annual household income** (n = 3,098)		
≤ \$10,000 or loss income	44.3	55.7
\$10,000–\$14,999	44.7	55.3
\$15,000–\$19,999	46.0	54.0
\$20,000–\$29,999	54.0	46.0
\$30,000–\$49,999	55.7	44.3
\$50,000–\$79,999	65.9	34.1
>\$80,000	82.9	17.1 ^E
Residential school (n = 3,237)		
Yes (parent or grandparent)	60.5	39.5
No	68.4	31.6
Crowded household (n = 3,732)		
Not crowded	66.6	33.4
Crowded	57.5	42.5
Community size (n = 3,764)		
< 300	62.1	37.9
301–1,500	59.9	40.1
1,500 and over	64.0	36.0
Remoteness / isolation (n = 3,764)		
Urban–not isolated	69.4	30.6
Rural–semi-isolated	57.8	42.2
Remote / special isolated	55.3	44.7

^E High sampling variability; interpret figure with caution.

Living in a remote community was associated with a greater likelihood of smoking during pregnancy than was living in an urban community. Community size was not associated with smoking during pregnancy.

A consistent and significant association was observed between the child’s age and the mother’s smoking during pregnancy. Smoking during pregnancy was more common among First Nations mothers of younger children from birth to age 2 than among First Nations mothers of older children aged 9 to 11 years (50.7% vs. 42.2%; see Table 36.8).

Table 36.8. Proportion of First Nations Mothers who Smoked During Pregnancy, by Child’s Current Age (n = 4,299)

Child’s current age*	No, did not smoke at all %	Yes, smoked during pregnancy %
0–2 years	47.9	52.1
3–5 years	52.6	47.4
6–8 years	53.1	46.9
9–11 years	58.3	41.7

Breastfeeding

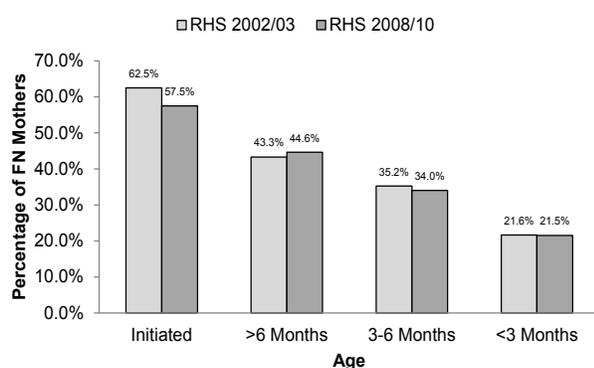
Close to two-thirds (60.2%) of all First Nations mothers reported ever having breastfed their child (see Table 36.9). This was slightly lower than the proportion (62.5%) who reported the same in RHS 2002/03 (see Figure 36.2). The proportion of First Nations mothers who reported ever breastfeeding was 90.3% in the MES study of mothers in the general Canadian population (PHAC, 2009). In RHS 2008/10, approximately one-fifth (21.8%) of the mothers who breastfed did so for less than three months. About one-third of First Nations mothers breastfed for three to six months, and almost half (44.8%) breastfed for more than six months (see Table 36.9). These proportions were again very similar to those found in RHS 2002/03 (see Figure 36.2). In the MES, 49% of the mothers who initiated breastfeeding were still breastfeeding at six months.

In summary, First Nations communities have not experienced the same increases in breastfeeding initiation that have been documented over the past decade in the general Canadian population, where rates of breastfeeding initiation have increased from 80% in 2000–01 to over 90% in 2006–07 (PHAC, 2009). Among First Nations women who did initiate breastfeeding, the proportion who breastfed for six months or more was similar to the proportion of mothers in the general Canadian population who also breastfed for six months or longer.

Table 36.9. Proportion of First Nations Mothers who Ever Breastfed and Duration of Breastfeeding

	%	95% CI
Ever breastfed (n = 4,361)		
No	39.8	[±2.5]
Yes	60.2	[±2.5]
Duration of breastfeeding (n = 2,546)		
< 3 months	21.8	[±2.9]
3–6 months	33.4	[±2.8]
> 6 months	44.8	[±3.0]

Figure 36.2. Proportion of First Nations Mothers Initiating Breastfeeding, by Duration of Breastfeeding, in RHS 2002/03 and RHS 2008/10



As in RHS 2002/03, in RHS 2008/10 the child’s age was not associated with breastfeeding initiation (see Table 36.10). This means that there was no change in breastfeeding initiation across the different age groups of First Nations children. On the other hand, breastfeeding duration was associated with the child’s age in RHS 2008/10, a result not seen in RHS 2002/03 (see Table 36.11).

Table 36.10. Proportion of First Nations Mothers who Ever Breastfed, by Child’s Age (n = 4,355)

Child’s current age*	Did not breastfeed %	Did breastfeed %
0–2 years	39.5	60.5
3–5 years	36.7	63.3
6–8 years	39.5	60.5
9–11 years	43.7	56.3

Table 36.11. Proportion of First Nations Mothers who Breastfed, by Breastfeeding Duration and by Child’s Age (n = 1,962)

Child’s current age*	< 3 months %	3–6 months %	> 6 months %
3–5 years	19.9	32.7	47.3
6–8 years	14.4	37.9	47.8
9–11 years	20.7	34.9	44.4

Breastfeeding initiation and duration were not associated with infant birth weight.

The associations between maternal, family, and community variables and the prevalence of breastfeeding were examined by breastfeeding percentage and duration, and all possible associations were statistically significant (see Table 36.12). The proportion of First Nations mother who reported breastfeeding increased with mother’s age at the time of birth, and it was highest (57.9%) among mothers aged 35 years or older.

The proportion of mothers who reported breastfeeding increased with both increasing education and income levels. First Nations mothers who reported having a post-secondary education, who had an annual income of over \$80,000, or who lived in less crowded homes tended to breastfeed more. Those who had parents or grandparents who had attended residential school, those who lived in larger communities, and those who lived in urban communities also more often reported breastfeeding.

Table 36.12. Proportion of First Nations Mothers who Breastfed, by Maternal, Family, and Community Characteristics

	Breastfeeding	
	No %	Yes %
Maternal age at birth (<i>n</i> = 4,131)		
< 20 years	47.3	52.7
20–34 years	38.9	61.1
> 35 years	31.5	68.5
Maternal education (<i>n</i> = 4,262)		
High school or less	45.1	54.9
College, technical, vocation	27.9	72.1
University	16.9	83.1
Annual household income (<i>n</i> = 3,118)		
≤ \$10,000 or loss income	45.7	54.3
\$10,000–\$14,999	45.2	54.8
\$15,000–\$19,999	36.0	64.0
\$20,000–\$29,99	37.6	62.4
\$\$30,000–\$49,999\$	35.9	64.1
\$50,000–\$79,999	30.4	69.6
> \$80,000	20.8 ^E	79.2
Residential school (<i>n</i> = 3,734)		
Yes (parent or grandparent)	37.0	63.0
No	43.1	56.9
Crowded household (<i>n</i> = 4,320)		
Not crowded	38.2	61.8
Crowded	42.4	57.6
Community size* (<i>n</i> = 4,361)		
< 300	30.9	69.1
301–1,500	36.9	63.1
1,500 and over	44.3	55.7
Remoteness / isolation** (<i>n</i> = 4,361)		
Urban–not isolated	33.9	66.1
Rural–semi-isolated	41.5	58.5
Remote / special isolated	48.8	51.2

^E High sampling variability; interpret figure with caution.

Examining the associations between maternal, family, and community characteristics and the duration of breastfeeding also showed statistical significance for all factors, with the exception of household crowding and community remoteness (see Table 36.13). Breastfeeding duration of more than six months was statistically associated with First Nations mothers aged 35 years or older, First Nations mothers with a post-secondary education, First Nations mothers with an annual household income over \$80,000, and First Nations mothers who lived in larger communities (more than 1,500 persons).

Table 36.13. Proportion of First Nations Mothers who Breastfed, by Duration of Breastfeeding, and by Maternal, Family, and Community Characteristics

	< 3 months %	3–6 months %	> 6 months %
Maternal age at birth (<i>n</i> = 2,418)			
< 20 years	27.3	39.4	33.3
20–34 years	21.4	33.1	45.5
> 35 years	20.3	30.9	48.8
Maternal education (<i>n</i> = 2,487)			
High school or less	20.7	32.9	46.4
College, technical, vocation	24.6	33.7	41.6
University or higher degree	11.3	40.5	48.2
Annual household income (<i>n</i> = 1,865)			
≤ \$10,000 or loss income	20.8	33.2	46.0
\$10,000–\$14,999	26.1	39.2	34.7
\$15,000–\$19,999	35.2	23.4	41.1
\$20,000–\$29,999	23.2	33.5	43.2
\$30,000–\$49,999	16.4	39.4	44.3
\$50,000–\$79,999	15.0	29.0	56.0
> \$80,000	12.5 ^E	33.6 ^E	53.9
Residential school (<i>n</i> = 2,227)			
Yes (parent or grandparent)	23.9	31.3	44.8
No	17.9	35.3	46.8
Crowded household (<i>n</i> = 2,521)			
Not crowded	19.9	35.8	44.3
Crowded	23.9	29.9	46.2
Community size* (<i>n</i> = 2,546)			
< 300	20.1	39.4	40.5
301–1,500	19.7	35.9	44.4
1,500 and over	24.9	29.0	46.1
Remoteness / isolation (<i>n</i> = 2,546)			
Urban–not isolated	22.0	37.0	41.0
Rural–semi-isolated	23.1	29.8	47.0
Remote / special isolated	16.8	34.6	48.6

^E High sampling variability; interpret figure with caution

Breastfeeding duration of less than three months was statistically associated with First Nations mothers whose parents or grandparents had attended residential schools (23.9%), compared to those who had not (17.9%).

Table 36.14 presents significant associations between breastfeeding and maternal smoking. First Nations mothers who did not smoke during pregnancy breastfed their children more often than mothers who smoked throughout pregnancy (66.7% vs. 53.7%, respectively).

Table 36.14. Proportion of First Nations Mothers who Breastfed, by Maternal Smoking During Pregnancy

Mother smoked during pregnancy (n = 4,277)	Breastfed	
	No %	Yes %
No, did not smoke at all	33.3	66.7
Yes, throughout the pregnancy	46.3	53.7

The association between duration of breastfeeding and maternal smoking was also statistically significant (see Table 36.15). First Nations mothers who did not smoke throughout their pregnancy tended to breastfeed their children for more than six months (49.5%) more often than mothers who did smoke (38.5%).

Table 36.15. Duration of Breastfeeding, by Maternal Smoking During Pregnancy

Mother smoked during pregnancy	Duration of breastfeeding		
	< 3 months	3–6 months	> 6 months
No, did not smoke at all	18.3	32.2	49.5
Yes, throughout the pregnancy	26.4	35.0	38.5

Child Health and Developmental Outcomes

Most of the variables related to health determinants for First Nations children were not significantly associated with birth weight, maternal smoking during pregnancy, or breastfeeding. Exceptions included associations between low birth weight and general child health; maternal smoking and general child health; and maternal smoking and grade failure.

General health

Significant associations were observed between the birth weight of First Nations infants and their current general health, as reported by the biological mother. More First Nations mothers of infants that were born at average or high birth weight rated the general health of their children as being “very good or excellent” (88.0% and 88.5%, respectively), compared to 75.5% of First Nations mothers of low birth weight infants who rated their children as having “very good or excellent” health (see Table 36.16). Maternal smoking during pregnancy was also significantly associated with the general health of First Nations children. A higher proportion of First Nations mothers who did not smoke during pregnancy than of those who did smoke during pregnancy reported that their children had “very good or excellent health” (89.5% vs. 86.5%, respectively).

Table 36.16. Child’s Current General Health as Reported by First Nations Mothers, by Child’s Birth Weight, Maternal Smoking during Pregnancy, and Breastfeeding

	Proportion of First Nations mothers reporting on their child’s general health status		
	Very good or excellent %	Good %	Poor or fair %
Child’s birth weight (n = 4,250)			
Low birth weight (0.4 kg–2.5 kg)	78.1	19.4	F
Average birth weight (2.5 kg–4.0 kg)	88.2	9.8	2.0 ^E
High birth weight (> 4.0 kg)	89.0	8.4	2.6 ^E
Maternal smoking during pregnancy (n = 4,295)			
No	89.7	8.7	1.6 ^E
Yes	86.6	10.8	2.6 ^E
Frequency of maternal smoking during pregnancy (n = 1,868)			
Daily	84.9	11.4	3.6 ^E
Occasionally	87.5	10.7	1.9 ^E
Breastfed (n = 4,350)			
No	87.1	10.6	2.3 ^E
Yes	88.8	9.3	1.9 ^E
Duration of breastfeeding (n = 2,539)			
< 3 months	89.1	9.5	F
3–6 months	88.7	9.3	2.0 ^E
> 6 months	89.1	9.1	1.7 ^E

^E High sampling variability; interpret figure with caution
^F Suppressed due to low cell count (n < 5) or very high sampling variability (CV > .333).

The vast majority (83.3%) of First Nations mothers reported that their child currently lived in a smoke-free home. This represented a significant reduction in infant and child smoke exposure, compared to the prenatal period for which percentages of maternal and environmental smoke exposure were 46.9% and 40.0%, respectively.

Health conditions, learning disabilities, and ADD/ADHD

No significant associations were found between the birth weight of First Nations infants; maternal smoking during pregnancy; breastfeeding; and current health conditions including asthma, allergies, chronic ear infections, dermatitis or eczema, and child learning disabilities. Similarly, no significant associations were found between attention deficit disorder/attention deficit hyperactivity disorder (ADD/ADHD) and birth weight, maternal smoking, and breastfeeding. For the health conditions listed above, we analyzed only children aged 3 to 11 years

because clinical diagnosis of these conditions before the age of 3 is less likely. Similarly, we included only school-aged children in the analysis of learning disabilities.

Failing or skipping a grade

Failing a grade in school was significantly associated with maternal smoking during pregnancy, as a higher proportion of First Nations children whose mothers smoked during pregnancy failed a grade (8.8% vs. 5.7%, respectively). Significant associations between failing or skipping a grade and child birth weight, and breastfeeding initiation and duration were not found. There was a slight trend that showed First Nations children of mothers who smoked daily during pregnancy failed a grade more often than children of mothers who smoked occasionally during pregnancy; however, the sample size was insufficient to draw a firm conclusion

DISCUSSION AND CONCLUSIONS

This chapter was prefaced by a teaching from Mohawk elder and midwife Katsie Cook about the need to “reawaken our women to the power that is inherent in that transformative process that birth should be” (Wessman & Harvey, 2000). Ensuring that the physical, mental, emotional, and spiritual needs of pregnant women and breastfeeding mothers are met has been a family and community priority for First Nations people throughout their history. The findings described in this chapter clearly demonstrate that there is still much to be done in First Nations communities to ensure that pregnant women and mothers are supported in accordance with these traditional cultural teachings.

As it stands, First Nations mothers and their children are challenged by disproportionately high levels of poverty, inadequate educational opportunities, and household crowding rates that are 18 times higher than those of the general Canadian population (Martens, 2002; Statistics Canada, 2008, 2011). The impacts of residential schools, which include multi-generational trauma and the disruption of intergenerational transmission of cultural teachings regarding pregnancy and parenting, should not be underestimated (Brant Castellano, Archibald, & DeGagné, 2008). First Nations children whose parents or grandparents who attended residential school had mothers who smoked more often and underwent sustained breastfeeding less often than those First Nations children whose parents or grandparents did not attend residential school.

Pregnancy is a time of major transition physically, emotionally, and socially. Positive and supportive

family and community relationships are essential to the successful navigation of these changes by the pregnant woman and were integrated into traditional kinship systems (Sweetwater & Barney, 2009). Unfortunately, these systems of support have been undermined by historic and ongoing colonial policies, including residential schooling and relocation of birthing to hospitals outside of First Nations communities. The result is that, too often, pregnant women are left feeling isolated rather than empowered and supported (Couchie, Sanderson, & Society of Obstetricians and Gynaecologists of Canada, 2007; Kornelsen, Kotaska, Waterfall, Willie, & Wilson, 2010).

Not surprisingly, the social and economic stressors experienced by First Nations women before, during, and after pregnancy have a detrimental impact on prenatal, infant, and child health. Poverty, lower levels of educational completion, and household crowding are known determinants of infant (Reidpath & Allotey, 2003) and maternal health (Paruzzolo, Mehra, Kes, & Ashbaugh, 2010). To address the underlying poverty facing First Nations mothers and children, there is a need for better living conditions (Native Women’s Association of Canada [NWAC], 2004) and better and especially accessible and relevant educational opportunities for pregnant women and mothers of young children (NWAC, 2009b). Sustainable, community-controlled economic development is also needed (NWAC, 2009a).

According to both RHS 2002/03 and RHS 2008/10, First Nations infants experience much higher rates of prenatal maternal and environmental smoke exposure than do infants in the general Canadian population. First Nations mothers of younger children are more likely to have smoked during pregnancy than are mothers of older children. Maternal smoking during pregnancy is, in turn, associated with poorer childhood health and school-age grade failure. First Nations infants are also less likely to be breastfed and more likely to be born with a high birth weight than are infants in the general Canadian population.

The high proportion of First Nations mothers who reported smoking during pregnancy, especially among mothers of younger children, highlights the need for anti-smoking programs. The high rates of household smoke exposure for the unborn infant raise an even broader need for community-wide cessation of smoking. Rather than targeting only pregnant women who smoke, concurrent smoking cessation programs for partners, sibling, aunts, uncles, and grandparents are needed as well. Programs that focus on pregnant women must be designed to ensure that the poverty, isolation, and post-colonial trauma that First Nations women may be experiencing are addressed

as part of the smoking cessation strategy (NWAC, 1995).

Importantly, there are signs of resistance and resilience mixed in with these adverse findings. For example, although rates of breastfeeding initiation have stabilized at just over 60% in First Nations communities, compared to 90% in the general Canadian population, women who do breastfeed in First Nations communities sustain their breastfeeding at rates similar to those of women in non-First Nations populations. Intervention programs must emphasize the importance of sustained breastfeeding in addition to the initiation of breastfeeding.

Also, even though the rate of household smoke exposure by pregnant women in First Nations communities was 40%, only 16.7% of First Nations children lived in a home that was not smoke-free. Perhaps First Nations families are able to create smoke-free environments for their children; what is needed is for this smoke-free environment to be initiated during pregnancy rather than during childhood.

Additionally, maternal smoking is positively associated with poverty, decreased educational attainment, household crowding, and residence in a remote or isolated community. Breastfeeding is also less often performed by First Nations mothers under the age of 20 and those who are poor or who have achieved a lower level of education. These findings demonstrate the need to customize programs before and during pregnancy to support pregnant women; such programs should prioritize and reach out to these specific groups of mothers.

Community-based midwifery is a policy option that is gaining increasing traction as a best practice in Aboriginal contexts (Tough, 2010). Aboriginal midwifery has the potential to revitalize the intergenerational transmission of traditional cultural knowledge regarding reproductive health, as well as the potential to reach out to vulnerable and isolated mothers in order to re-establish kin support.

With respect to ongoing maternal child health assessment, using tools like the RHS, linking maternal and child health surveys, and linking child health surveys and birth registration records (Smylie et al., 2010) would enhance our ability to understand the complex pathways that lead to infant, child, maternal, family, and community well-being. We recommend that the next RHS include a question about gestational age, so that gestational age-specific birth weights can be calculated. Gestational age-specific birth weights allow for a more accurate understanding of fetal growth, as it is not dependent on the rate of pre-term birth. The Public Health Agency of Canada now reports “large for gestational age” and “small for gestational

age” as variables in place of high and low birth weight, so this suggestion would facilitate comparisons. Finally, opportunities to employ more advanced statistical methods including multivariate, stratified, and hierarchical analyses would allow us to better understand interrelationships and to control for confounding factors when exploring health determinants and health outcomes.

Each and every First Nations community member must work to rekindle the teachings regarding the support and empowerment of pregnant women and mothers. In keeping with life-cycle teachings that recognize continuity across life stages, the health of First Nations infants and their mothers must be supported not only during pregnancy but also before and after pregnancy.

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Chapter 37

Emotional and Behavioural Problems

EXECUTIVE SUMMARY

This chapter examines emotional and behavioural problems experienced by First Nations children living on-reserve or in northern communities as reported by their primary caregivers in the First Nations Regional Health Survey (RHS) 2008/10. Primary caregivers in First Nations communities were asked how well their First Nations child had gotten along with the rest of the family in the six months prior to the survey, whether they thought their child had had more emotional or behavioural problems than other boys or girls of their age in that time period, and whether their child had ever been diagnosed with anxiety or depression or attention deficit disorder/attention deficit hyperactivity disorder (ADD/ADHD). Prevalence of emotional or behavioural problems was low among First Nations children. A higher proportion of First Nations boys had been diagnosed with anxiety/depression or ADD/ADHD, compared to girls. Prevalence of anxiety/depression and ADD/ADHD was also higher among older children. Prevalence of emotional or behavioural problems was also lower among First Nations children who lived with both biological parents and among those whose parents had a higher household income. Implications for these results are discussed below.

KEY FINDINGS

- Overall, a large majority of First Nations children were reported to have gotten along well with the rest of their family, to have fewer emotional or behavioural problems than other boys or girls of the same age, and revealed low prevalence of anxiety, depression, and ADD/ADHD.
- 95.1% got along “very well” or “quite well” with the rest of the family.
- 14.1% had more emotional or behavioural problems than other boys or girls of their age.
- 0.7% had been diagnosed with anxiety or depression.
- 2.0% had been diagnosed with ADD/ADHD.
- First Nations boys were diagnosed approximately twice as often as First Nations girls with anxiety or depression (0.9% vs. 0.4%) and ADD/ADHD (2.6% vs. 1.4%).
- A higher proportion of older First Nations children have been diagnosed with anxiety, depression, or ADD/ADHD, and had trouble getting along with their family compared to younger children.
- First Nations children whose primary caregivers are both of their biological parents got along better with their family, had fewer emotional and behavioural problems than other boys or girls of the same age, and had lower rates of anxiety, depression, and ADD/ADHD, compared to those whose primary caregivers are one or neither biological parent.
- As household income increased, fewer primary caregivers reported that their First Nations children had more emotional or behavioural problems than other boys or girls of the same age.

INTRODUCTION

A holistic view of child health takes into account emotional well-being and behavioural difficulties. The previous phase of the First Nations Regional Health Survey, RHS 2002/03 (First Nations Information Governance Committee, 2005), demonstrated that First Nations children living in First Nations communities appeared to be in good emotional health and revealed few behavioural problems. The majority of primary caregivers described their First Nations children as getting along well with the rest of the family, although a minority of primary caregivers reported that their First Nations children had more emotional or behavioural problems than other boys or girls of the same age, and few First Nations children had been diagnosed with anxiety or depression or ADD/ADHD.

The purpose of this chapter is to assess the current state of First Nations children's emotional and behavioural well-being, as well as to compare these findings with those of RHS 2002/03. Additionally, because First Nations children do not live in isolation but rather in a much larger social sphere, this chapter also assesses factors that were hypothesized to contribute children's emotional health, including factors that are unique to First Nations communities, such as cultural involvement and parental attendance at residential schools.

Emotional and behavioural problems may be assessed by looking at how well children get along with their family. Those who are in the child's immediate environment—typically the biological parents—provide elements that are vital to well-being, including a sense of belonging, comfort, security, safety, health, and welfare. However, within First Nations communities, many First Nations children do not live with their biological parents. There are currently more First Nations children in child welfare programs than there were at the peak of residential schooling. In the 1940s, there were 9,000 residential school attendees; today, there are 27,000 First Nations children in the care of child welfare agencies (Aboriginal Healing Foundation, 2008; Assembly of First Nations [AFN], 2006). First Nations children enter the child welfare system at a rate of one in 10, whereas other Canadian children enter at the rate of one in 200 (AFN, 2006). This high rate of separation from biological parents suggests that First Nations children may suffer emotionally.

Intergenerational trauma from residential schooling is also thought to influence the emotional health of First Nations children. Intergenerational trauma occurs when unresolved trauma in one generation is passed on to future

generations, resulting in “psychological baggage being passed from parents to children” (Aboriginal Healing Foundation, 2004, p. 3). In contrast, cultural participation (i.e. engaging in cultural events or practices) is thought to bolster emotional health and reduce behavioural issues among First Nations children. Cultural participation suggests stronger links among family members, and the family has traditionally been the source of values and teachings, such as First Nations language and traditions. Cultural participation is also likely to lower the risk of engagement in delinquent activities; First Nations children who do not have strong affiliations to culture and family may be more susceptible to risky behaviours as they move towards adolescence. Finally, cultural participation may buffer First Nations children from the effects of discrimination, resulting in reduced symptoms of depression and emotional distress (Whitbeck, McMorris, Hoyt, Stubben, & LaFromboise, 2002).

Poverty is also linked with emotional well-being, especially with one's sense of self-worth. A study conducted by the Ontario Federation of Indian Friendship Centres on urban off-reserve Aboriginal families found that impoverished native families, many of which were single-parent families, suffered the following psychological traumas: low self-esteem, depression, anger, self-doubt, intimidation, frustration, shame, and hopelessness (Aboriginal Healing Foundation, 2008). The risk of emotional distress is high; according to the Assembly of First Nations (2006) report, the poverty rate for Aboriginal children is double the poverty rate for other children in Canada (30% vs. 15%).

Finally, participation in extra-curricular physical activities is linked not only to better physical health but also to psychological health. Recreational and sports programs for children and youth are important for combatting boredom, alienation, and anxiety and for fostering peer support and a sense of belonging (Advisory Group on Suicide Prevention, 2003).

In summary, the present chapter explores emotional and behavioural issues among First Nations children aged 3 to 11 years living in First Nations communities and examines potential risk factors or predictors of these issues, including poverty, physical and sedentary activity, child care, cultural participation, and parental attendance at residential schools.

METHODS

Primary caregivers were asked a series of questions about their child's emotional well-being and behavioural problems.

Emotional and behavioural problems. Primary caregivers were asked whether during the previous six months their child had had more emotional or behavioural problems than other boys or girls of the same age (response options). Statistics are included for those children 3-11 years of age.

Quality of relationship with family. Primary caregivers were asked how well during the previous six months the child had gotten along with the rest of the family. Response options were: “very well, no difficulties,” “quite well, hardly any difficulties,” “not too well, lots of difficulties,” and “not at all well, constant difficulties.” For data analysis, this variable was dichotomized into “quite well to very well” versus “not too well to not at all well.” Statistics are included for those children 3-11 years of age.

Health condition diagnoses. Primary caregivers were asked whether a health professional had ever told them that their child had anxiety/depression (yes/no) or ADD/ADHD (yes/no).

Finally, the associations between various potential covariates of emotional well-being and behavioural problems were assessed including, gender, age, primary caregiver, parental attendance at residential school, household income, parental education, frequency of participation in extra-curricular activities (sport teams or lessons; art or music groups/lessons; traditional singing, drumming or dancing groups/lessons), and time spent on a typical day in sedentary behaviour (watching TV; working at a computer; reading; and playing video games).

RESULTS

Overall, a large majority of First Nations children were reported to have gotten along well with the rest of their family, to have fewer emotional or behavioural problems than other boys or girls of the same age, and to have low rates of anxiety, depression, and ADD/ADHD (see Table 37.1).

Table 37.1. Percentage of Children Diagnosed with Emotional and Behavioural Problems

	RHS 2002/03 % [95% CI]	RHS 2008/10 % [95% CI]	General Population
Difficulty getting along with family***	7.2 [6.1, 8.6]	4.9 [4.2, 5.7]	n/a
Emotional & behavioural problems (compared to peers)***	17.7 [15.2, 20.6]	14.1 [12.7, 15.6]	n/a
Diagnosed with anxiety or depression	n/a	0.7 [0.5, 0.9]	6.5* (Canada: major depression, 15 to 24 years)
Diagnosed with ADD/ADHD	2.6 [2.3, 3.0]	2.0 [1.6, 2.5]	5.29** (Worldwide: children and adolescents)

* Statistics Canada

** Polanczyk, de Lima, Horta, Biederman, & Rohde (2007)

*** children 3 years and up

Emotional and Behavioural Problems, by Gender and Age

No gender differences were observed in primary caregivers' reports of how well their First Nations children had gotten along with the rest of the family and whether they had had more emotional or behavioural problems than other boys or girls of the same age. However, a higher proportion of First Nations boys had been diagnosed with anxiety/depression and ADD/ADHD compared to girls: anxiety/depression (0.9% vs. 0.4%) and ADD/ADHD (2.6% vs. 1.4%).

Some emotional and behavioural problems appeared to increase with age. Older First Nations children more often appeared to have difficulties getting along with their family than did younger children, with 3.6% of those aged 3 to 5 years, 4.5% of those aged 6 to 8 years, and 6.7% of those aged 9 to 11 years reportedly having such difficulties (95% CIs [2.5, 5.0], [3.5, 5.7], and [5.3, 8.3], respectively).

Similarly, it appears that a higher proportion of older First Nations children had been diagnosed with depression/anxiety than younger children: 1.3% (95% CI [0.9, 1.9]) of those aged 9 to 11 years had been diagnosed with depression or anxiety, while statistics for those less than 9 years of age were suppressed due to low cell counts.

In addition, a higher proportion of older children also had been diagnosed with ADD/ADHD compared to younger

children: aged fewer than 3 years (suppressed), 3 to 5 years (1.4%E), 6 to 8 years (2.0%E), and 9 to 11 years (3.9%) had been diagnosed with ADD/ADHD (95% CIs [0.9, 2.2], [1.4, 2.9], and [2.8, 5.3], respectively).

No age differences were observed in primary caregivers' perceptions of their First Nations children's emotional and behavioural problems compared to those of other boys or girls of the same age.

Emotional and Behavioural Problems, by Various Characteristics

Living with biological parents

A lower proportion of First Nations children experienced emotional and behavioural problems than other boys or girls of their age when their primary caregivers were both of their biological parents (see Table 37.2).

Table 37.2. Proportion of First Nations Children with Emotional and Behavioural Problems, by Primary Caregiver

	Both biological parents	One biological parent	Neither biological parent
Difficulty getting along with family	3.4 [2.7, 4.2]	6.4 [5.2, 7.8]	5.6 [3.3, 9.2] ^E
More emotional & behavioural problems	10.6 [9.1, 12.4]	15.7 [13.5, 18.2]	22.7 [17.9, 28.2]
Diagnosed with anxiety or depression	0.3 [0.2, 0.5] ^E	0.9 [0.6, 1.4] ^E	^{FE}
Diagnosed with ADD/ADHD	1.8 [1.3, 2.5] ^E	1.7 [1.2, 2.3]	4.9 [3.3, 7.1] ^E

^E High sampling variability. Use figure with caution.

^F Statistic suppressed due to low cell size (n < 5) or very high sampling variability (CV > .333).

Parental attendance at residential schools

There is ample evidence that First Nations experience intergenerational trauma from residential schooling (Aboriginal Healing Foundation, 2004; Bombay, Matheson, & Anisman, 2009). However, First Nations children whose parents attended residential school did not exhibit more emotional or behavioural problems than did children of the same age whose parents did not attend residential school, according to the reports of their primary caregivers in RHS 2008/10.

Household income

Household income was not associated with children

being diagnosed with anxiety/depression, or ADD/ADHD or with getting along with their family. However, household income was associated with primary caregivers' perceptions of their First Nations children's emotional and behavioural problems (as compared to their peers). As household income increased, fewer primary caregivers reported that their First Nations children had more emotional and behavioural problems than other boys and girls of the same age; for example, 9.6% of the primary caregivers with an annual household income of \$50,000 or more reported that their First Nations children had more emotional and behavioural problems than other boys or girls of the same age, compared to 22.1% of the primary caregivers with an annual household income of \$9,999 or less.

Highest level of parental education

No association was observed between parental educational and emotional well-being/behavioural problems.

Frequency of engagement in extra-curricular activities

First Nations children's prevalence of emotional and behavioural problems did not differ according to their participation in extra-curricular activities (sports, music and traditional dance) or sedentary activities per day (TV watching, computer use, reading, and video game playing).

DISCUSSION

This chapter revealed low rates of emotional and behavioural problems among First Nations children living in First Nations communities. Few First Nations children had been diagnosed with anxiety or depression or ADD/ADHD, and only a minority of First Nations children were perceived by their primary caregivers to have more difficulties getting along with their family or to have more emotional or behavioural problems than other boys and girls of the same age. Little change in emotional and behavioural problems was observed between RHS 2002/03 and RHS 2008/10, with the exception that First Nations children were reported to be getting along with the family more often in the latter survey.

Risk factors were observed for emotional and behavioural problems. For instance, First Nations boys were diagnosed with anxiety or depression or ADD/ADHD twice as often as girls. Additionally, First Nations children got along with their family better, had

fewer emotional or behavioural problems, and had lower rates of anxiety, depression, and ADD/ADHD when their primary caregivers were both of their biological parents rather than only one or neither biological parent. Finally, First Nations children whose parents had a lower annual household income had more emotional and behavioural problems than did children of the same age whose parents had a higher annual household.

The current results suggest that part of a child's emotional and behavioural well-being may be grounded in the stability of the family. Children appear to fare better if they are raised by both biological parents and if they get along well with the rest of the family. Unfortunately, First Nations children are often separated from their biological parents for a variety of reasons, including a parent leaving the family because of marital separation, substance use, or legal issues, for example, or a child being removed by child welfare services. These results suggest that commitments aimed at healthy child development should address the emotional and behavioural risks that occur when children and their biological parents are separated.

One limitation of the current survey is that directionality between variables cannot be established because of the cross-sectional design. Although it appears that a stable household will result in children with greater emotional and behavioural well-being, it may also be that children with greater emotional well-being are likely to bring about a stable household. Due to this limitation, results must be interpreted with caution.

Additionally, although many risk factors for child emotional and behavioural well-being have been suggested by previous research, few links were confirmed in the present analysis. It may be that these associations, such as the association between physical activity and well-being, will become significant later on in development.

A small minority of primary caregivers reported that their First Nations children appeared to have emotional or behavioural problems. This finding must also be interpreted with caution. There is great potential that primary caregivers' responses may be biased with respect to social desirability; primary caregivers may be reluctant to perceive that their children are "difficult" or to report this to others. Posing questions about specific behaviours rather than asking for general opinions about typical behaviours, such as

instances of child aggressiveness in the previous week or instances of disciplinary action in school, may yield more accurate and less biased reports regarding children's emotional and behavioural problems.

CONCLUSIONS

In summary, rates of emotional and behavioural problems were low among First Nations children. Risk factors were observed: rates of emotional and behavioural problems were higher among First Nations boys than among girls, and First Nations children raised by only one or neither of their biological parents were more likely to experience emotional and behavioural problems than were children raised by both biological parents. Results appear to highlight the importance of a stable family life for First Nations children's emotional and behavioural well-being.

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Appendix A

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First Nations Information Governance (Board of Directors)

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Monica Chiefmoon, AB
Heather Morin, David Clellamin, BC
Nigel Johnson, NS
Haike Muller, BC
Wendy Paul, NB

FNIGC National Staff

Jane Gray, RHS National Project Manager
Gail McDonald, FNIGC Operations Manager
Albert Armieri, Senior Analyst
Fei Xu, Data Analyst
Jennifer Thake, Data Analyst
Alex Yurkiewich, Data Analyst
Lyndsy Gracie, RHS Admin.
Chantal Martin, FNIGC Admin.

Past FNIGC Staff

Leah Bartlett
Paula Arriagada
Lita Cameron

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Appendix B

Report Contributors

The First Nations Information Governance Centre wishes to acknowledge the following individuals who contributed to the development of the 37 chapter report through their knowledge and expertise.

Author	Chapter	Survey	Number
Dr. Eric Crighton, Dr. Chantelle Richmond, Dr. Kathi Wilson, Dr. Mark Rosenberg	Demographics and Migration	Adult	1
Dr. Fred Wein Dr. Jennifer Thake (FNIGC)	Employment and Income	Adult	2
Dr. Esther Usborne (Health Canada)	Education and Language	Adult	3
Andrea Johnston, B.A., Lori Meckelborg, Dr. Linda Fischer, Jacqui Lavalley, Jeff D'Hondt, Dr. Jennifer Thake (FNIGC)	Housing and Living Conditions	Adult	4
Fjola Hart Wasekeesikaw, RN MN	Health Care Access	Adult	5
Christine Cameron, B.A.	Physical Activity and Diet	Adult	6
Elisa Levi, MPH, Dr. Kelly Skinner (PhD Candidate) and assistance from Dr. Mark Nord	Nutrition and Food Security	Adult	7
Dr. Cheryl Currie, Dr. Daniel McKennitt & Dr. Jennifer Thake (FNIGC)	Smoking, Substance Misuse and Gambling	Adult	8
Dr. Jennifer Thake (FNIGC) Angeline Letendre, Nicole Eshkagogan	Sexual Health	Adult	9
Dr. Jennifer Thake (FNIGC)	Chronic Health Conditions	Adult	10
Anne LeBlanc	Diabetes	Adult	11
Dr. Eric Crighton Dr. Chantelle Richmond, Dr. Kathi Wilson, Dr. Mark Rosenberg	Health Status & Quality of Life	Adult	12
Dr. Herenia Lawrence	Oral Health	Adult	13
Brian Schnarch, B.A., and Kai-Lei Samchuck	Injury and Disability	Adult	14
Nicole Eshkakogan, B.A, M.A, Dr. Lynden Crowshoe, Dr. Jennifer Thake (FNIGC)	Preventative Care	Adult	15
Dr. Michel Tousignant, Nibisha Sioui (PhD Candidate), Dr. Jennifer Thake (FNIGC)	Community Wellness	Adult	16

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Amy Bombay (PhD Candidate), Dr. Kim Matheson, Dr. Hymie Anisman, Alex Yurkiewich, M.Sc. (FNIGC), Dr. Jennifer Thake (FNIGC)	Personal Wellness & Safety	Adult	17
Dr. Jennifer Thake (FNIGC) Dr. Marcia Anderson	Traditional Culture	Adult	18
Elizabeth Fast (PhD Candidate), Dr. Vanda Sinha, Dr. Nico Trocmé	Household Environment	Youth	19
Dr. Malcolm King, Maxwell King, Dr. Alexandra Smith, M.D, Alex Yurkiewich, M.Sc. (FNIGC)	Education and Language	Youth	20
Christine Cameron, B.A.	Physical Activity and Nutrition	Youth	21
Dr. Daniel McKennit, Dr. Cheryl Currie, Dr. Jennifer Thake (FNIGC)	Substance Use and Misuse	Youth	22
Dr. Dawn Martin-Hill, Amber Skye	Sexual Health	Youth	23
Dr. Jennifer Thake (FNIGC)	Health Conditions and Health Status	Youth	24
Dr. Herenia Lawrence	Oral Health	Youth	25
Alex Yurkiewich, M.Sc. (FNIGC)	Injury	Youth	26
Dr. Eric Crighton, Dr. Chantelle Richmond, Dr. Kathi Wilson, Dr. Mark Rosenberg	Health Care Utilization and Preventative Care	Youth	27
Dr. Dawn Martin-Hill	Community Wellness	Youth	28
Amy Bombay (PhD Candidate), Dr. Kim Matheson, Dr. Hymie Anisman	Personal Wellness and After School Activities	Youth	29
Andrea Johnston, B.A. Dr. Jennifer Thake (FNIGC)	Household Environment	Child	30
Dr. Julie Peters, Dr. Jerry White	Education and Language	Child	31
Christine Cameron, B.A.	Physical Activity and Nutrition	Child	32
Dr. Jennifer Thake (FNIGC)	Health Conditions and Health Status	Child	33
Dr. Herenia Lawrence	Dental Care Utilization, Baby Bottle Tooth Decay and Treatment Needs	Child	34
Alex Yurkiewich, M.Sc. (FNIGC)	Injury	Child	35
Dr. Janet Smylie, Dr. Patricia O'Campo, Dr. Kelly McShane, Dr. Nihaya Daoud, Caitlin Davey	Prenatal Health	Child	36
Dr. Jennifer Thake (FNIGC)	Emotional & Behavioural Problems	Child	37

Appendix C

Participating Communities

The following First Nations communities participated in the First Nations Regional Health Survey (RHS) 2008/10:

ALBERTA

Alexander First Nation
Atikameg-Whitefish Lake First Nation
Bigstone Cree Nation
Blood Tribe - Kainai
Dena Tha' First Nation
Driftpile - Cree Nation
Duncan's First Nation
Enoch Cree Nation
Ermineskin - Cree Nation
Kapawe'no First Nation
Louis Bull Tribe
Paul First Nation
Piikani Nation
Samson Cree Nation
Sucker Creek First Nation
Tsuu T'ina Nation

BRITISH COLUMBIA

Adams Lake
Campbell River First Nation
Canim Lake
Cape Mudge Band
Chawathil First Nation
Chehalis Indian Band
Chemainus First Nation
Cowichan Tribes
Fort Nelson First Nation
Gitanyow Band Council
Gitsegukla Band Council
Gitwangak Band Council
Glen Vowell Band
Hagwilget Village Council
Heiltsuk Nation
Hupacasath First Nation
Katzie First Nation
Kispiox First Nation
Kwadacha Band
Lake Babine Nation

Metlakatla Governing Council
Moricetown
Mount Currie Band Council
Nadleh Whut'en Band
Nanoose First Nation
Okanagan Indian Band
Sechelt Indian Band
Sliammon First Nation
Soowahlie Indian Band
Spallumcheen Indian Band
Takla Lake First Nation
Tla-o-qui-aht First Nations
Tsartlip First Nation
Tseshaht First Nation
Ucluelet First Nation
Williams Lake Indian Band

MANITOBA

Barren Lands First Nation
Berens River First Nation
Black River First Nation
Bloodvein First Nation
Brokenhead Ojibway Nation
Ebb and Flow First Nation
Fisher River Cree Nation
Garden Hill First Nation
Keeseekoowenin Ojibway Nation
Kinonjeoshtegon First Nation
Long Plain First Nation
Mathias Colomb First Nation
Misipawistik Cree Nation
Nisichawayasihk Cree Nation
Northlands Denesuline First Nation
Norway House Cree Nation
Opaskwayak Cree Nation
O-Pipon-Na-Piwin Cree Nation
Peguis First Nation
Pinaymootang First Nation
Pine Creek Anishinabe Nation
Roseau River Anishinabe First Nation

Sagkeeng First Nation
Sandy Bay Ojibway First Nation
Sayisi Dene First Nation
Skownan First Nation
Tataskweyak Cree Nation
War Lake First Nation
Waywayseecappo First Nation
Wuskwi Sipihk First Nation

NEW BRUNSWICK

Eel Ground First Nation
Elsipogtog (Big Cove) First Nation
Esgenoopetitj (Burnt Church) First Nation
Kingsclear First Nation
Madawaska Maliseet First Nation
Saint Mary's First Nation
Woodstock First Nation

NEWFOUNDLAND

Miawpukek

NORTHWEST TERRITORIES

Aklavik Indian Band
Behchoko First Nation
Deh Gah Gotie Dene Council
Deninu K'ue First Nation
Fort Good Hope
Gwichya Gwich'in Council
Jean Marie River First Nation
K'atlodeeche First Nation
Liidlii Kue First Nation
Lutsel K'e Dene Band
Nahanni Butte
Tetlit Gwich'in Council
Tulita Dene
Wekwee'ti Council
Wha Ti First Nation
Yellowknives Dene First Nation

NOVA SCOTIA

Acadia
Annapolis Valley
Bear River
Chapel Island First Nation
Eskasoni
Glooscap First Nation
Membertou
Millbrook

Paq'tnkek First Nation
Pictou Landing
Shubenacadie
Wagmatcook
Waycobah First Nation

ONTARIO

Aundeck-Omni-Kaning
Batchewana First Nation
Chippewas of Kettle and Stony Point First Nation
Chippewas of the Thames First Nation
Eabametoong First Nation
Eagle Lake
Fort William
Lac La Croix
Mohawks of Akwesasne
Mohawks of the Bay of Quinte
Moose Deer Point
Moravian of the Thames
Oneida Nation of the Thames
Rainy River First Nations
Sagamok Anishnawbek
Six Nations of the Grand River
Temagami First Nation
Thessalon
Wabigoon Lake Ojibway Nation
Wahta Mohawk
Walpole Island
Wasauksing First Nation
Whitefish River
Wikwewikong

PRINCE EDWARD ISLAND

Lennox Island

QUEBEC

Atikamekw d'Opiteciwan
Betsiamites
Conseil de la Première Nation Abitibiwinni
Conseil des Atikamekw de Wemotaci
Eagle Village First Nation-Kipawa
Kitigan Zibi Anishinabeg
La Nation Innu Matimekush-Lac John
Les Atikamekw de Manawan
Listuguj Mi'gmaq Government
Micmacs of Gesgapegiag
Mohawks of Kanasatake
Montagnais de Natashquan

Montagnais de Pakua Shipi
Montagnais de Unamen Shipu
Montagnais du Lac St-Jean
Naskapi of Quebec
Nation Anishnabe du Lac Simon
Nation Huronne Wendat
Odanak
Timiskaming First Nation
Innu Takuaikan Uashat Mak Mani-Utenam
Innu Essipit

SASKATCHEWAN

Big River First Nation
Birch Narrows Dene Nation
Canoe Lake Cree First Nation
Clearwater River Dene Nation
Cowessess First Nation
Day Star First Nation
Fishing Lake First Nation
Flying Dust First Nation
George Gordon First Nation
Hatchet Lake Denesuline Nation
Island Lake First Nation
James Smith Cree Nation
Kahkewistahaw First Nation
Keeseekoose First Nation
Key First Nation
Kinistin First Nation
Lac La Ronge Indian Band
Little Pine First Nation
Mistawasis First Nation
Mosquito Grizzly Bear's First Nation
Muscowpetung First Nation
Muskeg Cree Nation
Muskoday First Nation
Muskowekwan First Nation
One Arrow First Nation
Onion Lake First Nation
Poundmaker First Nation
Red Earth Cree First Nation
Red Pheasant First Nation
Saulteaux First Nation
Sturgeon Lake First Nation
Sweetgrass First Nation
Thunderchild First Nation
White Bear First Nation
Yellow Quill

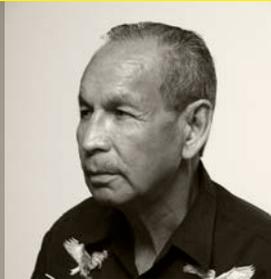
YUKON

Champagne and Aishihik First Nations
Carcross/Tagish First Nation
First Nation of Na-cho Nyak Dün
Kluane First Nation
Kwanlin Dun First Nation
Liard First Nation
Little Salmon/Carmacks First Nation
Ross River Dena Council
Selkirk First Nation
Ta'an Kwäch'än Council
Teslin Tlingit Council
Tr'ondëk Hwëch'in
Vuntut Gwitchin First Nation
White River First Nation

**FIRST NATIONS REGIONAL HEALTH
SURVEY (RHS) 2008/10**



Our Voice, Our Survey, Our Future



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First Nations Information Governance Centre
Le Centre de gouvernance de l'information des Premières Nations

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