



In Their Own Words: Using Open-Ended Assessment to Identify Culturally Relevant Concerns among Kenyan Adolescents

Akash R. Wasil^{1,2}  · Katherine E. Ventura-Conerly² · Sarah Gillespie³ · Tom L. Osborn² · John R. Weisz²

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Abstract Standardized assessment tools developed in western contexts may systematically miss certain problems that are considered important in non-western cultures. In this mixed-methods study, we used an open-ended assessment tool (the Top Problem Assessment; TPA) to identify culturally relevant concerns among low-income Kenyan youth. We then (a) applied thematic analysis to identify the most frequently reported problems and (b) examined the extent to which these problems were reflected in standardized mental health measures. Using the TPA, we identified common social, academic, and economic problems facing Kenyan youths. Specifically, 61% of the sample reported a social problem, 38% an academic problem, and 35% an economic problem. By contrast, the standardized assessments revealed that worrying and difficulty concentrating were the most commonly reported symptoms. However, the emotional and behavioral problems assessed via the standardized measures were only reported as top problems by 17% of the sample. Overall, our findings are consistent with the idea that standardized measures can miss certain culturally-salient concerns that can be acquired through open-ended assessments. We discuss how brief open-ended assessment tools could complement standardized measures, inform the development of culturally relevant standardized measures, and offer rich data about the experiences of people in understudied cultural contexts.

Keywords Depression and anxiety · Adolescents · Cross-cultural assessment · Open-ended assessment · Global mental health

✉ Akash R. Wasil
wasil@sas.upenn.edu

¹ Department of Psychology, University of Pennsylvania, Philadelphia, USA

² Department of Psychology, Harvard University, Cambridge, USA

³ Institute of Child Development, University of Minnesota, Minneapolis, USA

Introduction

The fields of global mental health and cross-cultural psychiatry have long grappled with concerns about applying western diagnostic criteria in cross-cultural studies of mental health problems. Kleinman (1977) argued that studies that only use existing standardized tools, based on western classification schemes such as the DSM-5, are likely to “find” the problems that are universal yet “miss” problems that are culture-specific. While this concern was initially raised several decades ago, it continues to remain a central issue in cultural psychiatry research. For instance, in a recent systematic review of qualitative studies assessing how depression is expressed in different cultures, the authors concluded, “the DSM model and standard instruments currently based on the DSM may not adequately reflect the experience of depression at the worldwide or regional levels” (Haroz et al. 2017: 151).

A thorough assessment of problems is especially important when researchers or policymakers are working cross-culturally. Indeed, before developing and implementing interventions, it is important to thoroughly understand and assess both the problems facing a population and the context surrounding those problems (e.g., Verdelli et al. 2003). Given that individuals in western settings often design interventions for individuals from non-western settings (see Summerfield 2008, Osborn et al. 2020d), measuring the problems that individuals in non-western countries prioritize and their associations with mental health symptomatology may be especially important.

Although there have been notable efforts to idiographically and qualitatively examine problems facing specific cultures (e.g., Shehadeh et al. 2020; Wilk and Bolton 2002), the majority of cross-cultural mental health studies continue to exclusively use standardized, closed-ended instruments that measure symptoms and contextual factors from Western diagnostic classifications. There is a particular need to understand the problems and concerns of people in non-western countries, especially resource-poor individuals in sub-Saharan Africa (see Sweetland, Belkin, and Verdelli 2014). Given the limited resources devoted to mental health in sub-Saharan African countries (Patel et al. 2007), it is particularly valuable to understand which problems are perceived as most important in order to channel limited resources toward the concerns that matter most to the individuals receiving care.

In this study, we used the Top Problems Assessment (TPA), Patient Health Questionnaire-9 (PHQ-9), and Generalized Anxiety Disorder Screener-7 (GAD-7) to assess problems in a sample of Kenyan youth in a low-resource environment. The TPA allows participants to identify their own concerns, while the PHQ-9 and GAD-7 ask participants to respond to a pre-determined list of items measuring symptoms of depression and anxiety respectively. In the sections that follow, we review literature assessing mental health problems among youth in low-resource environments and non-western countries, highlight the benefits of idiographic assessment techniques, and describe the rationale for the present study.

Review of Problems Faced by Adolescents in Low-Resource Environments

Children and adolescents experience unique problems and challenges in resource-poor environments. Previous research has shown that poverty is associated with a variety of life problems, including mental illness, medical issues, academic struggles, social difficulties, criminality, and substance use (Aber, Jones, and Cohen 2000; Murali and Oyeboode 2004). Youth living in informal urban settlements, or “slums” experience especially poor outcomes, including lack of access to clean water, poor sanitation and overcrowding, inconsistent access to food and shelter, and family relationship problems (Ernst and Phillips 2013; Rook, Raison, and Lowry 2018; Westergaard et al. 1999).

The unique challenges of youth growing up in informal urban settlements must also be understood in the broader context of challenges faced by many youths in non-western countries. Notably, beyond the typical functional, educational, and social challenges that accompany mental illness (Fergusson and Woodward 2002), youth in many developing countries also face widespread stigma of mental illness (Kabir et al. 2004; Ndetei et al. 2011; Semrau et al. 2015; Sorsdahl and Stein 2010; Wasil, Park, and DeRubeis 2020c). Additionally, they are often unable to access mental healthcare due to a lack of public investment in mental healthcare, poor mental health infrastructure, and insufficient numbers of providers (Patel et al. 2007; Saraceno et al. 2007). Since intervention scientists and policymakers have limited resources, assessing the top concerns of youth could identify precise targets for intervention. Interventions targeting these locally identified problems are likely to be more relevant, rated as more acceptable, receive more buy-in, and possibly even be more effective than “one-size-fits-all” interventions (Summerfield 2008).

Benefits of Open-Ended Assessment Techniques

Though researchers are increasingly seeking to understand and meet the treatment needs of youth in non-western countries, researchers face challenges in accurately measuring prevalence rates of mental illness, assessing priority problems, and evaluating treatment outcomes due to a lack of cross-culturally validated instruments (Mullick and Goodman 2005). Indeed, a number of researchers have noted barriers to properly validating standardized mental health measures cross-culturally (Flaherty, Gaviria, and Pathak 1988; Sousa and Rojjanasrirat 2011), suggesting that standardized measures with pre-determined items may not always achieve adequate psychometric integrity and may not attain cultural relevance in some non-western settings (Mutumba, Tomlinson, Tsai 2014; Sweetland, Belkin, and Verdelli 2014; Osborn, Kleinman, and Weisz *in press*). Nevertheless, the majority of studies still rely on these standardized tools because they offer many important advantages, including quantitative interpretations of scores, norms and benchmarks for comparison across different samples, and often well-documented psychometric integrity (Groth-Marnat 2009; Meyer et al. 2001).

More specifically, there are several well-documented challenges in using standardized measures cross-culturally. Transporting standardized measures across cultures and languages poses several threats to validity, including to construct

validity, content validity, and criterion-related validity (van Ommeren 2003). For example, although there is evidence across many cultures for a syndrome similar to major depressive disorder (MDD; American Psychological Association 2013; Steel et al. 2014), the prevalence, symptomatology, and clinical presentations vary across cultures (Ferrari et al. 2013; Osborn, Kleinman, and Weisz in press). Given these cultural differences in the expression of psychopathology, researchers have identified strategies to adapt and validate standardized measures cross-culturally. Best practices include identifying the local or cross-culturally relevant construct, accurately measuring the content of this construct, considering local idioms of distress, and establishing guidelines for interpreting scores (Kaiser et al. 2015; Kohrt et al. 2011). For example, Bolton and Tang (2002) applied free listing techniques to develop culturally-informed assessments of functioning in Rwanda and Uganda. As another example, Kohrt et al. (2011) followed these guidelines in their Nepali adaptation of the Depression Self-Rating Scale and Child PTSD scale. Nevertheless, even if investigators follow such guidelines and engage in extensive mixed-methods work, they may fail to establish key aspects of validity. For example, Haroz et al. (2014) followed these best practices in their development of a measure for psychosocial functioning and substance use among Burmese adults living in Thailand; they attained adequate internal consistency and test-retest reliability, but poor criterion-validity.

Even when standardized measures can be considered cross-culturally valid, the pre-determined items on standardized questionnaires may limit our ability to understand symptoms within the broader context of an individual's primary concerns. A case could be made that psychiatric symptoms, while important, may be best understood as part of the tapestry of life concerns, and that understanding those concerns could usefully complement disorder-specific symptom assessment (Weisz et al. 2011). When mental health symptoms are measured in ways that are agnostic to culture, important information may be missed, and case conceptualizations may be inaccurate. For example, in a retrospective chart review of over 400 cases referred for assessment, the cultural consultation service (CCS) at McGill University found that assessment of cultural and contextual influences on case presentation led to re-diagnosis in over 60% of these cases (Kirmayer, Guzder, and Rousseau 2014). Such findings illustrate the limitations of assessments that ignore relevant cultural factors.

This concern is especially important for studies in non-western cultures, as most standardized measures were developed and validated with western samples (see Kleinman 1977). Given that much global mental health research is performed using tools and concepts developed in western countries and institutions, culturally relevant assessment tools are especially important to ensure that research addresses the concerns, priorities, and needs of people living in non-western countries (Laher and Cockcroft 2017; Summerfield 2008). To identify those concerns, researchers and policymakers are likely to need methods that permit each individual to identify, without restriction, the problems most important to him or her. Idiographic assessment has been defined as “the measurement of variables and functional relations that have been individually selected, or derived from assessment stimuli or contexts that have been individually tailored, to maximize their relevance for the

particular individual” (Haynes, Mumma, and Pinson 2009: 180). Among its several applications (Barlow and Nock 2009; Haynes, Mumma, and Pinson 2009), idiographic assessment may provide a way to identify concerns that would not have been evident via standardized measures (Weisz et al. 2011) and to overcome some of the challenges faced when transporting standardized measures cross-culturally (Laher and Cockcroft 2017). Idiographic methods may shed light on the contextual factors associated with symptoms as well as identify culturally specific concerns that are not captured by standardized measures.

Applying open-ended idiographic measures may be especially informative in assessment across cultures, because cultures may differ widely in the types of life problems experienced and their associations with mental health symptoms (Sweetland, Belkin, and Verdeli 2014; Wilk and Bolton 2002). For example, the cultural formulation interview (CFI) in the fifth edition of the Diagnostic and Statistical Manual-5 (DSM-5) is intended to elicit the ways in which culture may impact a client’s presentation through a series of 16 open-ended questions (American Psychiatric Association 2013). Additionally, in one recent study, investigators administered idiographic and standardized measures of psychopathology to adults in Kenya and Pakistan (Shehadeh et al. 2020). They found that the themes and prevalence of top problems also varied across these contexts, underscoring the importance of population-specific assessments; only “poor health” was a top concern among both populations. Furthermore, this study found that three main problem types accounted for over 75% of all top concerns in Kenya (financial problems, poor health, and unemployment) and two problem types accounted for over 90% of all top concerns in Pakistan (poor health and emotional issues). Idiographic assessments of individuals’ top concerns may thus uncover a finite number of actionable, population-specific themes. By first using idiographic assessments to understand the problems and concerns of people living in non-western countries, researchers may be able to prioritize research questions and interventions that are most relevant for their target population.

This reasoning suggests that standardized assessment with fixed questions could be usefully complemented by idiographic assessment of the problems that individual research participants identify as important, and that this approach might be especially valuable in cultural contexts most different from those in which the tools were developed and validated. In addition to identifying psychological symptoms that may not be captured by standardized tools, idiographic assessments can shed light on the possible etiology of top problems. Ideally, such idiographic assessment would be open-ended, with no restrictions on the problems that individuals might identify. One measure that appears to satisfy these criteria is the Top Problems Assessment (TPA), a brief, low-cost, open-ended, idiographic measure which asks participants to freely list three problems that are most important to them (Weisz et al. 2011). The TPA allows participants to identify their own concerns, rather than responding to a list of pre-determined items. Furthermore, the TPA has generated strong evidence of psychometric integrity, including test-retest reliability, convergent and discriminant validity, and sensitivity to change when paired with a quantitative rating of problem severity (as in Chorpita et al. 2017; Weisz et al. 2011, 2012, 2019). The TPA has been used to assess problems in

children and adolescents in the United States (Chorpita et al. 2017; Weisz et al. 2011, 2012, 2017), but to our knowledge it has never been applied cross-culturally. Such an application could be useful in a number of ways, including to global mental health (GMH) researchers, policymakers, and clinical outreach personnel who want to identify or help with the problems rated most important by a targeted population. Idiographic assessment might also help clinicians, researchers, and policymakers understand local ways to perceive, express, and conceptualize mental health problems (Wilk and Bolton 2002; Mbuthia et al. 2018). For these purposes, the directness and open-ended nature of the TPA could be particularly useful.

The Present Study and its Theoretical Context

As a step toward understanding the unique problems of adolescents in resource-poor settings, we assessed and examined top problems and internalizing symptoms in a sample of adolescents from Kibera, Kenya. Kibera is one of the largest informal urban settlements in the world (Bird, Montebruno, and Regan 2017) with 250,000 people living in a 0.96 square-mile area (Kenya National Bureau of Statistics 2010). To reduce the burden of mental health problems among resource-poor adolescents, it may be important to understand the problems they consider most important, as well as their social and environmental context. Indeed, adolescents are at particularly high risk for mental illnesses, and most mental illnesses develop during adolescence (Kessler et al. 2005). Previous research has shown that adolescents in Kenya commonly experience elevated symptoms of depression and anxiety, with females and older adolescents reporting higher levels of symptoms (Osborn et al. 2020b). Pre-pubescent males and females are equally likely to experience depression, but by age 15, females are twice as likely as males to have experienced an episode of depression (Hilt and Nolen-Hoeksema 2009). During puberty, affiliative relationships are theorized to become more salient for females while mastery relationships become more salient for males; these processes are both biologically and socially mediated (Nolen-Hoeksema and Girgus 1994; Ge, Conger, and Elder 2001). Understanding age and sex differences in the prevalence of top problems may shed light on contextual factors and personal concerns associated with the development of depression in this population.

As a first step toward these objectives, the present study had four aims: (a) Identify and thematically analyze the problems identified as most important by Kenyan adolescents according to TPA responses, (b) Identify the internalizing symptoms most prevalent in Kenyan adolescents according to standardized measurement tools for depression and anxiety, (c) Assess the extent to which problems identified by Kenyan adolescents are evident in standardized measurement tools, and (d) Examine TPA differences among subgroups in our sample. Specifically, we examine the prevalence of top problem categories according to gender, grade in school (i.e., a proxy for age), school context, and current symptomology.

Methods

Data Collection

Data for this study come from a larger study measuring the prevalence of depression and anxiety symptoms in school-going Kenyan adolescents (citation masked for review). Study investigators administered surveys to students from two schools in Kibera, Nairobi from early June to early July 2018. Participants filled out paper surveys in their school classrooms, and study staff were nearby to answer any questions. All questionnaires were administered in English, the language of instruction in the participating high schools. Additionally, all participants who reported elevated symptoms of depression or anxiety were invited to take part in a four-week group-based intervention, guided by trained group leaders. Half of the participants received an intervention that focused on study skills, addressing academic pressures that can be associated with depression and anxiety symptoms. The other half received an intervention focused on personal growth, gratitude, and values; the intervention is thought to be helpful in reducing symptoms of depression and anxiety (see Osborn et al. (2020c, e). This ensured that students with elevated symptoms were able to access support, despite the lack of mental health resources in Kibera (Osborn et al. 2020c).

School policy and local custom in the region grants school principals the authority to make decisions about student involvement in research, and parental consent is not required. Following these norms, school principals represented parents in receiving information about the study and provided informed consent. Additionally, informed consent was obtained from all individual participants included in the study. Participants were also informed that their participation was voluntary, they could opt-out of the study at any time, and they could refuse to answer individual questions. We consulted with local school administrators to ensure that we received all necessary approvals to perform this research in the context of Kenyan high schools. The Harvard University IRB approved this study; we also received approval from principals at all participating schools (see Osborn et al. 2020c).

Participants

Participants were recruited from two low-resource high schools in Kibera, Kenya. Both schools are resource-poor, community-run private schools in Kibera, one of the poorest slums in Africa. Historically, School 2 is considered more academically rigorous, and it outperforms School 1 in national examinations. In total, $n=100$ participants responded to the Top Problems Assessment with at least one top problem, and we received $n=258$ TPA responses.

Measures

Patient Health Questionnaire-8 (PHQ-8)

The PHQ-9 (Kroenke and Spitzer 2002) is a 9-item instrument used widely to screen for the presence and severity of depression around the globe. Its psychometrics have been reported for adolescents in the United States (Richardson et al. 2010) and in Kenya (Osborn et al. 2020b). In the United States, the PHQ-9 has demonstrated adequate internal consistency ($\alpha = 0.89$) and test-retest reliability ($r = 0.84$; Kroenke, Spitzer, and Williams 2001). The PHQ-9 has also demonstrated adequate internal consistency ($\alpha = 0.86$) in Sub-Saharan Africa (Chibanda et al. 2016). PHQ-9 scores have also been shown to be correlated with other measures of depressive symptoms and functioning (Kroenke, Spitzer, and Williams 2001). In this study, we used the PHQ-8, which is identical to the PHQ-9 except for the absence of the final item assessing suicidality. The PHQ-8 has been shown to be reliable and valid, and its scores are highly correlated with PHQ-9 scores (Kroenke and Spitzer 2002). Our Kenyan collaborators advised us to remove the suicide item because suicide is a highly sensitive and stigmatized topic in Kenya, and students may feel particularly uncomfortable to report suicidal ideation in a classroom setting.

Generalized Anxiety Disorder-7 (GAD-7)

The GAD-7 (Spitzer et al. 2006) is a 7-item instrument widely used to measure anxiety symptoms. In the United States, the GAD-7 has demonstrated adequate internal consistency ($\alpha = 0.92$), convergent, divergent, construct, and criterion validity in relation to other measures of anxiety (Spitzer et al. 2006; Löwe et al. 2008). The GAD-7 has also demonstrated adequate internal consistency ($\alpha=0.87$) in Sub-Saharan Africa (Chibanda et al. 2016).

Top Problems Assessment (TPA)

The TPA is a brief qualitative instrument designed to identify problems of greatest concern to youths (Weisz et al. 2011). In the original TPA study (Weisz et al. 2011), the measure was administered orally by trained research assistants, and participants were asked to select top problems to target in treatment. Based on conversations with Kenyan school administrators and Kenyan members of our study team, we modified the TPA to make it acceptable for our sample of Kenyan youths. First, because school administrators feared that stigma would influence oral discussions between researchers and participants, we administered a paper version of the TPA. Second, because our sample was not seeking treatment, we did not ask them to exclusively identify treatment targets or to rate the severity of these concerns over time. Third, the TPA was labeled “optional,” due to school administrator concern that participants might otherwise feel obligated to disclose potentially sensitive and stigmatizing personal information. Finally, we modified the wording based on advice from Kenyan collaborators to ensure the prompt would be well-understood.

We used the following prompt to elicit the top three problems:

We want to make sure that we can understand the things that are the most important to you right now. How would you describe the things that are bothering you most, using your own words? What are the things you are doing or feeling that are causing problems for you?

Please list, in 1–3 sentences, your top concerns in order of importance:

The TPA was administered after the PHQ-9 and GAD-7. Consistent with prior work using the TPA (Weisz et al. 2011), this ordering was chosen to evoke top problem responses that related to participants' mental health symptoms. Because participants filled out the symptom questionnaires before filling out the TPA, they may have been primed to think about symptoms or problems related to their symptoms when completing the TPA.

Top Problem Codes

We applied thematic analysis (see Braun and Clarke 2006) to code TPA responses. First, the first and second authors independently reviewed each response to familiarize themselves with the data. Then, these authors independently identified characteristics and themes in the TPA responses. Next, these authors discussed their lists of themes and developed a codebook detailing common overarching themes. As an example, because many participants noted problems related to a lack of financial resources, an "Economic Problems" theme was created. Then, sub-themes were developed to label patterns of variation within the theme. For example, within the theme "Social Problems," we created the sub-themes "Friends" and "Family" to distinguish between problems relating to friends and problems relating to family members. Next, the first two authors applied the codebook to about 33% ($n = 85$) of responses and assessed inter-rater reliability. Using Cohen's kappa, inter-rater reliability ranged from $k = 0.85$ to $k = 1.0$ (See Table 2). Then, the first author applied the codebook to all participant responses, with participant characteristics masked. The first two authors discussed responses for which it was not clear which theme fit best, and discussions with the third author were used to resolve any disagreements. We did not analyze themes that applied to less than 3% of the sample. For instance, our original codebook included a code for externalizing problems, but fewer than 3% of students reported an externalizing problem.

Results

Sample Characteristics

The mean age of participants was about 17 ($M = 16.96$, $SD = 1.51$), ranging from 14 to 20. Males and females were about equally represented (50% male, 48% female, 2% NA) and students were fairly evenly distributed among the two schools (48% from School 1, and 52% from School 2).

Participants reported elevated scores on the PHQ-8 ($M = 10.99$, $SD = 4.48$) and GAD-7 ($M = 10.68$, $SD = 4.11$). According to clinical cutoffs for the PHQ-8 and

GAD-7, scores above a ten indicate moderate depression and moderate anxiety (Kroenke and Spitzer 2002; Spitzer et al. 2006). Applying these cutoffs, 60% of participants reported scores corresponding to moderate depression, and 61% reported scores corresponding to moderate anxiety. We also calculated the mean, standard deviation, and frequency of endorsement for each item of the PHQ-8 and GAD-7 (Table 1).

Top Problems Amongst Kenyan Adolescents

What were the top problems/concerns raised by Kenyan adolescents? From the responses to the TPA, we identified six top problems amongst Kenyan youths: social problems, economic problems, academic problems, emotional problems, worries about the future, and humanitarian problems.

Social problems encompassed conflicts and concerns about interpersonal problems with others in the community including conflicts with parents or friends, perceived lack of support from those around them, feelings of loneliness and sadness, and bullying. Regarding concerns about their relationships with parents, youth mentioned: “my parents are very harsh toward me”, “I have sometimes problems with my family”, “Sometimes they [parents] don’t understand me”, and “Quarrelling with my parents cause problems in my life and will get stressed up”. Regarding interpersonal problems with friends, some adolescents noted that they perceived their friends as possible bad influences in their life. One mentioned, for

Table 1 Frequency of depressive symptoms and anxiety symptoms in kenyan adolescents

Symptom	Instrument (item)	Mean (SD) ^a	Number (% ^b) of participants endorsing symptom ^c
Worrying	GAD (Item 3)	2.03 (1.02)	64 (66%)
Difficulty concentrating	PHQ (Item 7)	1.70 (1.16)	51 (52%)
Anhedonia	PHQ (Item 1)	1.70 (1.0)	45 (48%)
Feeling Sad	PHQ (Item 2)	1.64 (1.13)	52 (52%)
Feeling like a failure	PHQ (Item 6)	1.60 (1.19)	47 (47%)
Unable to stop worrying	GAD (Item 2)	1.60 (1.12)	49 (51%)
Irritability	GAD (Item 6)	1.58 (1.16)	48 (49%)
Feeling afraid	GAD (Item 7)	1.54 (1.18)	46 (48%)
Feeling nervous	GAD (Item 1)	1.52 (1.02)	46 (49%)
Low energy	PHQ (Item 4)	1.38 (1.04)	44 (45%)
Difficulty relaxing	GAD (Item 4)	1.31 (1.15)	40 (41%)
Being restless	GAD (Item 5)	1.04 (1.07)	32 (33%)
Time	PHQ (Item 3)	1.02 (1.02)	33 (34%)
Motor problems	PHQ (Item 8)	1.01 (1.04)	30 (31%)
Poor appetite	PHQ (Item 5)	0.96 (1.08)	24 (25%)

^aEach item is scored on a scale from 0 to 3

^bWhen calculating percentages, we excluded participants who did not fill out the corresponding item

^cParticipants “endorsed” a symptom if they responded with a 2 or a 3

example, “making bad friends” as a top problem, and another mentioned “The friends I have are bad influences instead of good influences.” Finally, other adolescents mentioned “feeling lonely” from a lack of social support as a top problem, and another wrote that “I would like to find a person whom I would share my joy with.” Overall, social concerns seemed to be rather common amongst Kenyan youths.

Economic problems encompassed concerns about how the financial background and circumstances of youths affected their ability to attain basic resources. As one youth described it, “Basic needs are not met since our parents do not have money.” Many students reported that economic problems adversely affected their lives, and particularly their educational achievement. Indeed, school fees—the annual tuition charged by Kenyan secondary schools, including public secondary schools—was regularly identified as a top problem. One wrote, “The most important thing in my life is my education but the problem is about being sent home because of fee.” Another responded, “Most of the time I am sent back home for fees. I can spend one week at home looking for fees.” Finally, one more mentioned, “Payment of school fees you know my mother just works as a cleaner, so she does not got a lot of money to spend on me.” Other economic concerns referred to a lack of educational resources and facilities. For example, one participant mentioned, “Lack of learning facilities like books” as a top problem and another responded, “For me to have revision materials so that I can improve in my academics.”

Academic problems included school-related problems such as academic grades and time managements. Participants identified problems such as “getting low grades” and “passing exams” as their top concerns. For instance, one wrote that “Whether I could be able to pass my KCSE [the national examination at the end of secondary school] in 2019 and make my family proud” was a top problem. Other students mentioned, “Sometimes I do not get enough time to study” and “Lack of enough time for studies” to highlight their worry about academic achievement. Finally, some students mentioned time-consuming habits that they would like to break. For example, one stated, “I would like to stop the habit of watching television.”

Emotional problems included problems associated with one’s affective state such as “feeling nervous”, “feeling afraid”, and “feeling hopeless”. Sometimes these emotional problems appeared to arise from social problems. For example, one youth wrote “being afraid” as a top problem perhaps because “I [the student] lack courageous [sic] and this made many people to make jokes”.

Worries about the future included mainly concerns by youths about their future prospects. For instance, one student responded, “My most important concern is how my life will be after school.” Another wrote, “Worrying much on what I will do coming next year.” Finally, another mentioned, “What is there for me after am done with form four? Will I get a good job? Will I get my parents out of Kibera? Will I ever repay my parents for all they have done for me?”

Humanitarian problems encompassed a worry about the socioeconomic and environmental challenges that youths faced in their communities and a desire to do something about these problems. One student wrote, “To be able to change the lives of other children here in streets to avoid harmful substances e.g., drugs”. Another wrote, “How can we change lives of people with special needs.” Finally, another

wrote, “How to make Kibera a city (this my biggest dream) and I also have a book that I am writing about it”.

Frequency of Top Problems

To what extent did our sample identify these top problems? Table 2 shows the frequency of each top problem category. 61% of participants reported at least one *social problem*, and 26% reported a social problem as their top problem. 35% of adolescents reported at least one *economic problem*, and 23% reported an economic problem as their top problem. *Academic problems* were reported by 38% of participants, with 20% reporting an academic problem as their top problem.

Only 17% of respondents listed at least one *emotional problem* and 11% listed an emotional problem as their top problem. Similarly, only 11% of participants mentioned worries about the future among their top problems, and 3% listed a worry about the future as their top problem. Finally, 9% of participants listed at least one humanitarian problem and 5% listed a humanitarian problem as their top problem.

Association Between Top Problems and Depressive Symptoms and Anxiety Symptoms

Examining Symptom Differences Between TPA Responders and Non-Responders

Because we marked the TPA as “optional”, we compared depressive symptoms and anxiety symptoms between TPA responders ($n = 100$) and non-responders ($n = 67$). We found a statistically significant difference in depressive symptoms; $t(122.06 = 4.51, p < .01)$, and anxiety symptoms; $t(139.78 = 5.77, p < .01)$. TPA responders had greater depressive symptoms ($M_{PHQ-8} = 10.99, SD_{PHQ-8} = 4.48$) than non-responders ($M_{PHQ-8} = 7.45, SD_{PHQ-8} = 4.77$), as well as greater anxiety symptoms ($M_{GAD-7} = 10.68, SD_{GAD-7} = 4.11$) than non-responders ($M = 6.88_{GAD-7}, SD = 4.02_{GAD-7}$). There was also a statistically significant difference in age; $t(140.25) = 2.10, p < .03$. TPA responders were slightly older ($M_{age} = 16.96, SD_{age} = 1.43$).

Examining Symptom Differences Between Schools

We also tested for potential symptom differences between our two schools. There was no significant difference in PHQ-8 scores ($p = 0.54$) or GAD-7 scores ($p = 0.70$). There were no significant differences in any of the eight PHQ-8 symptoms or any of the seven GAD-7 symptoms between schools ($ps > 0.25$). There was a statistically significant difference in age; $t(85.726) = 2.13, p < 0.05$ between School 2 ($M_{age} = 16.65, SD_{age} = 1.28$) and School 1 ($M_{age} = 17.30, SD_{age} = 1.68$). We also tested for differences in specific symptoms, but no significant differences emerged.

Table 2 Frequency of top problem categories

Top problem	Cohen's Kappa	Number (%) of participants listed as a top problem	Number (%) of participants listed as top problem #1	Example quote
Social	1.0	61 (61%)	26 (26%)	"Relationships"
Family	1.0	25 (25%)	9 (9%)	"My parents are very harsh to me"
Friends	1.0	13 (13%)	3 (3%)	"The friends I have are bad influences instead of good influences"
Desire for support	1.0	12 (12%)	4 (4%)	"Somewhere to get emotional support"
Romantic	1.0	3 (3%)	2 (2%)	
Bullying	1.0	3 (3%)	0 (0%)	
Loneliness	1.0	5 (5%)	4 (4%)	
Economic	0.96	35 (35%)	23 (23%)	"Basic needs are not met since our parents do not have money"
Educational resources	1.0	30 (30%)	22 (22%)	"The most important thing in my life is my education but the problem is about being sent home because of fee"
Academic	0.97	38 (38%)	20 (20%)	"Problem of being able to understand in class."
Concentration	1.0	6 (6%)	3 (3%)	
School	0.96	26 (26%)	11 (11%)	
Time	1.0	7 (7%)	5 (5%)	
Emotional	0.93	17 (17%)	11 (11%)	"Feeling nervous"
Depressed	0.88	9 (9%)	3 (3%)	"Feeling hopeless"
Anxious	1.0	2 (2%)	1 (1%)	"Feeling nervous"
Worries	1.0	11 (11%)	3 (3%)	"What is there for me after am done with form four? Will I get a good job? Will I get my parents out of Kibera? Will I ever repay my parents for all they have done for me?"
Humanitarian	1.0	9 (9%)	5 (5%)	"To be able to change the lives of other children here in streets to avoid harmful substances e.g., drugs"
Identity	0.85	5 (5%)	4 (4%)	"Understanding whom am I"

Table 2 continued

Top problem	Cohen's Kappa	Number (%) of participants listed as a top problem	Number (%) of participants listed as top problem #1	Example quote
Religious/spiritual	1.0	4 (4%)	2 (2%)	"If a man dies, where they go to"
General/miscellaneous	1.0	20 (20%)	8 (8%)	"Doing mistakes"

Associations Between Top Problems and Other Variables

As exploratory analyses, we performed chi-square tests to compare top problems among gender, form, school, depressive symptom severity, and anxiety symptom severity. Specifically, we created a series of 2 (e.g., gender: male vs. female) \times 2 (e.g., social problem: present vs. absent) tables. The tests were carried out without correction for multiple comparisons, to maximize the heuristic, hypothesis-generating value of this study, the first to analyze top problems among high-school students in Sub-Saharan Africa.

Gender

Applying a chi-square test for independence, we examined differences in top problem endorsement by gender. Males were more likely to endorse at least one academic problem than females (48% of males endorsed at least one academic problem, compared to 29% of females), and this difference was near-statistically significant; $X^2(1, N = 98) = 3.659, p = 0.056$. We did not find statistically significant gender differences for social problems, economic problems, problems related to educational resources, humanitarian problems, or emotional problems.

Form

We divided our sample into a “lower form” group and a “higher form” group. The lower form group consisted of students from forms 1 and 2 ($n = 41$), and the higher form group consisted of students from forms 3 and 4 ($n = 40$). Using an independent sample t-test, we did not find evidence for a statistically significant difference between the two groups on PHQ-8 scores or GAD-7 scores.

We also examined the relationship between form and top problem endorsement. Applying chi-square tests for independence, we did not find evidence for statistically significant differences in the endorsement of social problems, economic problems, problems related to educational resources, humanitarian problems, academic problems, or emotional problems.

School

Applying chi-square tests for independence, we examined differences in top problem endorsement between School 1 ($n = 48$) and School 2 ($n = 52$), the more academically rigorous school. School 1 students were significantly more likely to endorse at least one emotional problem than School 2 students (25% of School 1 students endorsed at least one emotional problem, compared to 10% of School 2 students); $X^2(1, N = 100) = 4.187, p < .05$. School 1 students were also more likely to endorse at least one humanitarian problem compared to School 2 students (15% of School 1 students endorsed at least one humanitarian problem, compared to 4% of School 2 students), and this difference was near-statistically significant; $X^2(1, N = 100) = 3.514, p = 0.061$.

School 2 students were significantly more likely to endorse at least one problem related to educational resources than School 1 students (40% of School 2 students endorsed at least one problem related to educational resources, compared to 19% of School 1 students); $X^2(1, N = 100) = 5.563, p < .05$. School 2 students were also significantly more likely to endorse at least one academic problem than School 1 students (48% of School 2 students endorsed at least one academic problem, compared to 27% of School 1 students); $X^2(1, N = 100) = 4.669, p < .05$. We did not find a statistically significant difference in social problems or economic problems.

Depressive Symptoms

We divided our sample into a “high depressive symptoms” group and a “low depressive symptoms” group using the median PHQ-8 score in our sample. To account for missing data, we imputed PHQ-8 scores (see Buuren and Groothuis-Oudshoorn 2010). Members in the high depressive symptoms group ($n = 46$) had PHQ-8 scores of 12 or greater ($M_{\text{PHQ-8}} = 14.80, SD_{\text{PHQ-8}} = 2.88$), and members in the low depressive symptoms group ($n = 54$) had PHQ-8 scores less than 12 ($M_{\text{PHQ-8}} = 7.74, SD_{\text{PHQ-8}} = 2.88$).

Applying chi-square tests for independence, we examined the relationship between depressive symptoms and top problem endorsement. We did not find statistically significant differences for social problems, economic problems, problems related to educational resources, humanitarian problems, academic problems, or emotional problems.

Anxiety Symptoms

We divided our sample into a “high anxiety symptoms” group and a “low anxiety symptoms” group using the median GAD-7 score in our sample. To account for missing data, we imputed GAD-7 scores (see Buuren and Groothuis-Oudshoorn 2010). Members in the high anxiety symptoms group ($n = 52$) had GAD-7 scores of 11 or greater ($M_{\text{GAD-7}} = 13.67, SD_{\text{GAD-7}} = 2.63$), and members in the low anxiety symptoms group ($n = 48$) had GAD-7 scores less than 11 ($M_{\text{GAD-7}} = 6.98, SD_{\text{GAD-7}} = 2.50$).

Applying chi-square tests for independence, we examined the relationship between anxiety symptoms and top problem endorsement. We found that members of the high anxiety group were significantly more likely to endorse at least one humanitarian problem than members of the low anxiety group (15% of adolescents in the high anxiety group endorsed at least one humanitarian problem, compared to 2% of adolescents in the low anxiety group); $X^2(1, N = 100) = 5.392, p < .05$. We did not find statistically significant differences for social problems, economic problems, problems related to educational resources, academic problems, or emotional problems.

Discussion

We administered the Top Problems Assessment (TPA; asking youths to identify the most important problems in their lives using their own words) and standardized questionnaires for depression and anxiety (asking youths to endorse a pre-determined list of symptoms) to Kenyan adolescents. The TPA responses revealed six top problems amongst Kenyan youths: social problems, economic problems, academic problems, emotional problems, worries about the future, and humanitarian problems. The standardized measures revealed that worries, difficulty concentrating, and anhedonia were the most prevalent of the anxiety and depression symptoms listed in the measures. Our findings contribute to ongoing anthropological and psychometric discussions about the limitations of applying standardized western measures in non-western cultures (Haroz et al. 2017; Sweetland, Belkin, and Verdelli 2014; Osborn et al. 2020b; Osborn, Kleinman, and Weisz, *in press*). Our findings also offer support to the notion that brief, idiographic measures may be useful complements to standardized measures. Such open-ended idiographic measures can serve as low-cost ways for researchers from a variety of disciplines (e.g., psychology, anthropology, medicine, economics) to identify problems and concerns that are common and relevant among non-western populations.

While standardized measures are essential in psychopathology research, they are often not designed to identify the broader range of problems that impact peoples' lives and may interact powerfully with mental health symptoms. The standardized measures in our study showed that the Kenyan adolescents reported relatively high rates of some depression and anxiety symptoms, with especially high rates of worrying, problems concentrating, feeling sad, and anhedonia. The TPA responses offer greater detail into the kinds of challenges that adolescents are facing, highlighting specific social, economic, and cognitive issues they face. Although our study cannot determine if TPA responses are causally related to mental health problems, our findings raise context-specific hypotheses that could be examined in future research. For instance, many adolescents reported that they worry about being forced to leave school due to a lack of school fees, providing a specific example of how economic concerns may relate to mental health concerns (see Lund et al. 2011). Additionally, the TPA responses offer information about the problems that concern youths most, which may represent concerns that youths are most motivated to work to resolve. Future research could examine whether TPA responses can be used to help clinicians and researchers identify personalized treatment targets.

Our findings also have implications for global mental health research. Given that psychopathology is expressed, perceived, and spoken about differently in different parts of the world (Mbuthia et al. 2018; Wilk and Bolton 2002), brief qualitative tools like the TPA may be especially useful for understanding cross-cultural differences in perceived problems and stressors. For example, using the TPA, we found that adolescents provided potentially actionable and culturally relevant information that could be used to identify targets for intervention. For instance, adolescents in our sample commonly reported problems relating to the financial problems, mirroring findings from Shehadeh et al. (2020) who applied similar open-

ended methods with Kenyan adults. Specifically, 22% of our participants identified difficulties affording an education as their top problem, and 30% mentioned it among their top three problems. In Kenya, and potentially other low-resource settings, top problems among youth may be particularly likely to focus on economic and educational deficits (Mbuthia et al. 2018). Previous research has identified a robust association between poverty and mental health problems (Lund et al. 2010), potentially because poverty and mental health problems compound one another through a vicious cycle (Lund et al. 2011). It may be especially important for intervention scientists working in low-resource settings to be aware of the economic and educational obstacles facing young people (Atilola 2014), potentially incorporating lessons to help youths manage these challenges (Ismayilova et al. 2018).

Our sub-group analyses of school- and symptom-level differences in top problems illustrate another potential contribution of idiographic assessment. The schools in our study were similar along many socioeconomic, geographic, and demographic characteristics, and rates of internalizing symptoms did not differ between the two schools. Despite these similarities, students at the two schools reported different types of top problems. These findings illustrate the potential of the idiographic approach, represented here by the TPA, to identify significant differences between subgroups that might go undetected by standardized symptom measures. Additionally, the types of problems reported did not vary between youths with high and low symptoms. This highlights the fact that even youths without high levels of internalizing symptoms on standardized measures may not consider these symptoms to be their top problems. Rather, they experience a variety of psychosocial and environmental problems that influence their quality of life. As such, assessments that only use standardized mental health measures may risk capturing culturally relevant concerns—even among youths experiencing mental health difficulties. Additionally, this finding suggests that youth have diverse responses and trajectories under similar contextual circumstances. Future research should investigate mechanisms of resilience that may buffer the relationship between life stressors and symptoms of mental health among youth in low-resource environments.

One important advantage of open-ended assessment tools involves their ability to reveal information outside of one's discipline, sub-specialty, or theoretical orientation. Psychologists, anthropologists, sociologists, economists, and health care professionals commonly deploy different measures to understand emotional, cultural, social, economic, and medical problems in target populations. However, in many studies, using standardized assessments to measure all of these problems would be infeasible, as the length of the assessment would grow with each new questionnaire added. We propose that open-ended assessment tools can serve as a practical and valuable way for investigators to assess a host of interdisciplinary concerns that may have been missed by discipline-specific instruments of choice. For instance, our findings suggest that clinical psychologists applying open-ended questionnaires would encounter relevant social, cultural, and environmental factors that may have been missed by specialized tools. In a similar way, it is possible that professionals in other disciplines, which routinely use standardized assessments of

social or environmental problems, may uncover unique information about the emotional or psychological problems revealed through open-ended assessments.

Our study has certain limitations that should be noted. First, as we followed appropriate informed consent procedures, some youths decided not to complete the TPA, and on average those youths reported lower levels of depression and anxiety symptoms than youths who opted in. This suggests that our findings may be most applicable to more symptomatic youths, and this should be considered in evaluating the generalizability of the findings. Additionally, it is possible that the measure was not viewed as acceptable or appropriate by adolescents, in part due to the stigma associated with sharing personal problems. As such, future research using the TPA could examine how the TPA can be adapted or framed for use in different contexts. Second, we administered the TPA without asking participants to identify treatment targets. This makes our results more difficult to directly compare to previous research on American youth (e.g., Weisz et al. 2011), though this decision may have also allowed participants to more freely list any kind of top problem. Third, our study was exploratory, given the absence of prior research using this combination of measures. Nevertheless, our subgroup analyses were motivated by theories of sex and age differences in the prevalence and causes of depression during adolescence (Nolen-Hoeksema and Girgus 1994; Ge, Conger, and Elder 2001). Fourth, we ran several post-hoc comparisons, increasing our likelihood of detecting false positives. Our results should be considered exploratory, and future research is necessary to replicate our findings.

Our findings also suggest directions for future research. Researchers in Kenya and potentially other LMICs may wish to measure and target academic and economic concerns, as these stressors seem especially salient to Kenyan adolescents. Moreover, future studies could longitudinally measure changes in the severity of top problems over time or over the course of treatment (e.g., Weisz et al. 2012). Additionally, intervention researchers could use findings from idiographic measures to frame interventions in ways that appeal to stakeholders' priorities. For instance, our results suggest that Kenyan youth may be more inclined to participate in a trial that helps them "fight less with their parents and friends" or "improve grades" than a trial focused on "depression and anxiety" or even "feeling sad and nervous". This logic has been reflected in recent attempts to implement strengths-focused positive psychology interventions for adolescents (e.g., Osborn et al. 2020a, c, e) and present "clinical" interventions in strengths-focused ways (e.g., Wasil et al. 2020d, e). Furthermore, several kinds of interventions often target problems and concerns like those that Kenyan adolescents find important. These include interventions focused on interpersonal relationships (e.g., Verdell et al. 2003), family-based interventions (Pedersen et al. 2019), interventions that offer economic support to youth and their families (e.g., Haushofer et al. 2019). The acceptability and reach of these interventions may be enhanced if these interventions are framed in ways that appeal to adolescents' top problems. These principles could be especially important for scalable interventions that have the potential to disseminate widely, such as interventions delivered via lay counselors (Singla et al. 2017) or publicly available smartphone applications (Wasil et al. 2019, 2020b). Future research could examine how these interventions can be adapted and framed to address adolescent's top

problems. Treatments that are responsive to locally-identified top problems may be more culturally relevant and potentially more effective at reducing clinical symptoms.

Future research could also lead to the development and validation of brief qualitative tools to better understand psychopathology across cultures. For instance, measures could ask patients to list coping strategies (e.g., Wasil et al. 2020a) or ask clinicians to describe treatment techniques that they naturally use. Such studies would allow us to better understand the perspectives of patients and clinicians in different cultures using their own words, potentially yielding important insights that may be missed using standard questionnaires. Furthermore, the results of open-ended assessments could inform the development or adaptation of standardized quantitative measures. For example, our findings suggest that questionnaires measuring social and economic problems may be especially important to develop or adapt for Kenyan adolescents. Notably, there are also disadvantages of idiographic measures relative to standardized assessments—these include challenges comparing responses across groups, interpreting changes over time, and the time required to interpret qualitative responses. As such, we view standardized measurement and idiographic measurement as complementary approaches. In mental health research, we believe the clear benefits of standardized measurements can be complemented by the richness and specificity of open-ended idiographic qualitative measures.

Global mental health scholars have a variety of tools that can be used to better understand the needs, strengths, experiences, and problems of people around the world. Our findings illustrate how open-ended idiographic assessments, even extremely brief ones, can add value to standardized assessment tools. Moving forward, we hope that such measures are more frequently incorporated into routine assessments. Such a shift would allow investigators to understand participants' experiences in their own words, adding rich context to the information generally obtained through standardized instruments.

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Compliance with Ethical Standards

Conflict of interest Akash Wasil, Katherine Venturo-Conerly, Sarah Gillespie, Tom Osborn, and John Weisz each declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

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