

## ARTICLE

# Police contact and future orientation from adolescence to young adulthood: Findings from the Pathways to Desistance Study

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## Abstract

In response to the changing nature of policing in the United States, and current climate of police–citizen relations, research has begun to explore the consequences of adolescent police contact for life outcomes. The current study investigates if and under what conditions police contact has repercussions for future orientation during adolescence and the transition into young adulthood. Using data from the Pathways to Desistance study, a multisite longitudinal study of serious offenders followed from adolescence to young adulthood, results from a series of fixed-effects models demonstrated three main findings. First, personal and vicarious police contact, compared with no additional police contact, are negatively associated with within-person changes in future orientation. Second, any exposure to police contact, regardless of how just or unjust the contact is perceived, is negatively associated with future orientation. Third, the negative association between police contact and future orientation is larger for White individuals compared with that for Black or Hispanic individuals. Considering the importance of future orientation for prosocial behavior, the findings suggest that adolescent police contact may serve as an important life-course event with repercussions for later life outcomes.

## KEYWORDS

police contact, future orientation, adolescence, life course

## 1 | INTRODUCTION

The criminal justice system has changed dramatically in the past 50 years. This includes vast increases in the size and reach of the correctional system (Travis et al., 2014) and shifts toward proactive policing, which is characterized by preemptive stops, arrests, and searches as a primary tactic to disrupt criminal activity (Kubrin et al., 2010; Weisburd & Majmundar, 2018). As a result of the expansion of proactive policing and police presence in schools (Hirschfield, 2018), adolescents now have great potential for both personal and vicarious exposure to police encounters (Brunson & Weitzer, 2009; Geller, 2021; Gottlieb & Wilson, 2019; Harrel & Davis, 2020; Jackson et al., 2020a; Turney, 2020). Such encounters are increasingly recognized as life-altering experiences, given that most youth's first and only encounter with the criminal justice system is through a police officer (Kurlychek & Johnson, 2019).

Police stops, whether experienced directly or vicariously (via witnessing an encounter or learning of one involving family or friends), can be particularly consequential for shaping future orientation—that is, how people see their future goals, hopes, and expectations (see Johnson et al., 2014; Numri, 1991, 2005)—during adolescence and the transition into young adulthood. Adolescence is a critical period of life-course development during which views are evolving and malleable, and experiences during this time can play a pivotal role in shaping an individual's outlook and behavior (Johnson et al., 2011; Steinberg & Morris, 2001). Prior research has suggested that police contact during adolescence and emerging adulthood can meaningfully alter one's life outcomes including substance use, romantic partnerships, job loss, socioeconomic status, and offending (Doherty et al., 2016; Lopes et al., 2012; Novak, 2019; Schmidt et al., 2015; Wiesner et al., 2010; Wiley, 2015). Thus, this emerging research suggests that long-lasting consequences can occur from “even minimally invasive contact with the criminal justice system during adolescence” (Schmidt et al., 2015, p. 977). There are good reasons to expect that police contact influences adolescents' future orientation. These are often negative experiences between a youth and an older authority figure that generate harmful consequences such as the internalization of stigma and worry about future police contacts (DeVylder et al., 2020; Jackson et al., 2019), which can alter perceptions of future life chances (Corrigan et al., 2009; Merrill et al., 2016).

In this article, we use a life-course framework to examine the role of the criminal justice system in shaping future orientation, focusing on how both personal and vicarious police contact undermine an individual's outlook toward key future life milestones during the critical transition from adolescence into adulthood. Specifically, we measure future orientation with a novel variable that captures one's perceived likelihood and importance of achieving various milestones (i.e., having a good education, career, and family life; Jaynes et al., 2021). We also examine how characteristics of police contact (i.e., perceptions of procedural injustice) and demographic characteristics of adolescents (i.e., sex and race/ethnicity) shape responses to police contact. Given that police contact is not randomly distributed across the population, and is instead concentrated among adolescents of color living in disadvantaged and highly surveilled neighborhoods, we estimate these relationships using fixed-effects models that account for time-invariant factors, while controlling for key time-varying behavioral, personality, and environmental characteristics associated with selection

into police contact. Taken together, the results advance our understanding of the repercussions of criminal justice contact during adolescence and the transition to adulthood (Geller & Fagan, 2019; Geller, 2021; Hofer et al., 2020; Jackson et al., 2019) and how life events during this period shape future orientations (Haynie et al., 2014; Johnson et al., 2014; Swisher & Warner, 2013; Warner & Swisher, 2015; Zimmerman et al., 2016).

## 2 | BACKGROUND

### 2.1 | Criminological relevance of future orientation

Adolescence and the transition into adulthood is marked by dramatic physical, cognitive, and social changes (Sanders, 2013). Among the key traits that develop is the establishment of attitudes and views about the future (Johnson et al., 2014; Nurmi, 1991; Sanders, 2013). Future orientation can be characterized by processes including formulating expectations, aspirations, and plans for one's future, especially around key life milestones related to educational attainment, career aspirations, and life benchmarks such as getting married and buying a house (Johnson et al., 2014; Nurmi, 1991, 2005). In short, Johnson and colleagues (2014, p. 460) conceptualized future orientation as having "clearer goals, a better planning ability, and a stronger ability to overcome obstacles to their future."

Future orientation has emerged as a particularly important concept in developmental research. A growing number of studies have linked various measures of future orientation to delinquency (Alm & Laftman, 2016; Anderson et al., 2020; Borowsky et al., 2009; Brezina et al., 2009; Jaynes et al., 2021; Piquero, 2016). Other research has found that greater future orientation is associated with positive health, educational, and occupational outcomes (Johnson et al., 2014; Nurmi, 2005; Seginer, 2009; Steinberg, 2008). Notably, higher levels of future orientation can facilitate individuals overcoming adverse environments (Ostaszewski & Zimmerman, 2006) and are linked to improved outcomes among high-risk youth (Schmiege et al., 2011). Overall, the powerful influence of future orientation is based on expectancy-value theory, which holds that an individual will modify behavior based on their judgment of 1) how much an individual values a future outcome and 2) the likelihood of that future outcome occurring (Johnson et al., 2014; Wigfield & Eccles, 2000). Thus, future orientation can be altered by events that either shift one's value of a future outcome or perception of obtaining a goal.

Future orientation generally coalesces during the transition from adolescence to young adulthood based on a confluence of factors, including the maturation of brain regions associated with executive functioning (Johnson et al., 2014; Nurmi, 2005; Steinberg et al., 2009), coupled with a changing social context that provides more autonomy from parents, thereby requiring greater responsibility over decisions pertaining to future investment (Nurmi, 1991; Seginer, 2009). Together, these cognitive and social changes enable individuals' greater reasoning, setting of personal goals, capability to envision their future, and ability to overcome future obstacles (Johnson et al., 2014; Sun & Shek, 2012). The role of properly developed future orientation during the period of adolescence into the transition to young adulthood is particularly important considering this is when individuals make critical decisions about educational and occupational investments, selection of friends and romantic relationships, and engagement in prosocial or antisocial behavior, which in turn can influence their identity formation and status in adulthood (Nurmi, 1991, 2005).

Future orientation (or lack thereof) is a particularly strong determinant of criminal offending, although studies have conceptualized future orientation in different ways. Alm and Laftman

(2016) linked individual perceptions of optimism of the future (i.e., “I think things will go well for me in the future”) with lower levels of substance abuse, delinquency, and internalizing problems. Anderson and colleagues (2020) found that expectations of negative life events (arrest, victimization, and drunkenness) occurring were associated with future self-reported arrest. More commonly, criminological work has focused on the role of fatalistic attitudes, measured as the anticipation of an early death. A series of studies links an individual’s belief they would die earlier in life to self-reported arrest (Borowsky et al., 2009) and offending (Brezina et al., 2009; Jaynes et al., 2021; Piquero, 2016). Recently, Jaynes and colleagues (2021) presented a measure of an individual’s choice to devalue the future—such as the likelihood of obtaining a good education, career, or family life—because it is not perceived to be rewarding. Greater expectations toward the future were negatively associated with offending over time (Jaynes et al., 2021). From a life-course framework, this measure is particularly important because it captures an individual’s outlook toward future key milestones and life-course events that may be negatively impacted by the collateral consequences of criminal justice contact. Taken together, these findings, using a variety of different measures and data sources, consistently reveal that stronger future orientations among adolescents can reduce offending whereas weaker future orientations can increase it. Little criminological research, however, has identified events that shape adolescents’ outlook of the future.

## 2.2 | Police contact and adolescent development: A life-course perspective

The life-course paradigm emphasizes sources of both continuity and change in behavior and perceptions across various stages of the life course (Elder, 1985; Sampson & Laub, 2005). A central tenet of the life-course perspective is the potential for certain events (known as “turning points”) to shift behavioral patterns (Elder, 1985). Within criminology, the life-course perspective has been leveraged to examine how life events—such as marriage (Bersani & Doherty, 2013; Sampson et al., 2006), employment (Uggen, 2000), military service (Sampson & Laub, 1996), and parenthood (Kreager et al., 2010; Pyrooz et al., 2017)—can operate as turning points. Notably, life events during adolescence have also been conceptualized as turning points. For instance, educational failures (Blomberg et al., 2012; Na, 2017), school punishment experiences (Mittleman, 2018; Mowen & Brent, 2016), and joining gangs (Melde & Esbensen, 2011; Thornberry et al., 2003) are all turning points for youth.

Criminal justice contact itself has also been conceptualized as a turning point (Laub & Sampson, 2019), with the bulk of this research considering how adult incarceration facilitates criminal offending (Boman & Mowen, 2018; Frisch, 2018; Hickert et al., 2021). Research has also noted, however, that police contact—especially during adolescence and young adulthood—can operate as a pivotal life-course event (Doherty et al., 2016; Lopes et al., 2012; Novak, 2019; Schmidt et al., 2015; Wiesner et al., 2010; Wiley, 2015), with this research suggesting that “the enduring effects of early formal police intervention throughout the life course . . . affect not only subsequent criminal behavior but also critical noncriminal outcomes” (Lopes et al., 2012, p. 457).

There is reason to expect that police stops—the most common form of criminal justice contact during adolescence—can be an important life-course event. For instance, Paternoster and Iovanni (1989, p. 385) long ago suggested that because only a small proportion of individuals experience incarceration, “it may be more germane from a theoretical and a policy standpoint to examine the consequences of an experience common to a larger number of juveniles, such as encounters with the police.” More recently, Laub and Sampson (2019) suggested that aspects of criminal justice

contact beyond incarceration—such as contact with the police—can be consequential for life-course trajectories (also see Turney & Wakefield, 2019), and Geller (2021) suggested that police encounters are adverse childhood experiences with potentially profound developmental consequences. Moreover, Weaver and Geller (2019, p. 218) posited that police contact during this time is a particularly important life-course event as “adolescence is a period when paths are not yet hardened into deep grooves, where small decisions might have large consequences for later trajectories.” Nevertheless, the criminological literature that explicitly focuses on the role of police contact in shaping adolescent development remains underdeveloped (Laub, 2014; Laub & Sampson, 2019).

### 2.3 | Youth police contact and future orientation

Theoretically, both personal and vicarious police contact during adolescence may fundamentally dampen adolescents’ perspectives about the future. It is also possible that the relationship between adolescent police contact and future orientation stems from characteristics that lead to police contact or that responses to personal and vicarious police contact vary by characteristics of the contact (i.e., procedural injustice) and by adolescent demographic characteristics (i.e., sex and race/ethnicity). We address these possibilities below.

*Repercussions of Personal Police Contact.* There are several theoretical reasons why personal police contact may erode positive views about the future. First, police–youth contacts are often negative experiences (Nordberg et al., 2016, 2018) that can retain their salience over time (Dennison & Finkeldey, 2021; Jackson et al., 2019; Testa et al., 2021), thereby influencing how adolescents envision their future. As Harris and Jones (2020, p. 2) asserted, “we are naturally disposed to remember negative incidents and weigh them more heavily in evaluations than positive incidents.” Ultimately, such negative events—including negative youth police encounters—can induce trauma (Geller, 2021; Jackson et al., 2019; Jackson et al., 2021a), which can alter an adolescent’s perception of self (Merrill et al., 2016). As a result, adolescents may internalize experiences of police contact and, accordingly, negatively shift their self-perceptions and future expectations.

Second, encounters between youth and the police entail age, status, and power differentials that consistently disadvantage youth, and accordingly, these encounters can hold salience for shaping future expectations. During adolescence, one’s vision of adulthood is shaped by interpersonal interactions, especially with older individuals who hold status or power (Johnson et al., 2011; Steinberg & Morris, 2001). This chasm between youth and the police is likely exacerbated by the state-sanctioned nature of police stops, which afford police a degree of legal latitude to apply force with the aim of maintaining social order (DeVylder et al., 2020). Feelings of powerlessness may be especially consequential if police contact is repeatedly experienced over time. For instance, Geller and colleagues (2017) noted that as negative interactions accrue over time, the weight of these internalized emotions in the context of powerlessness to remedy them can generate psychological burdens that influence future behavioral and emotional well-being.

Third, youth–police encounters can be stigmatizing (DeVylder et al., 2020; Jackson et al., 2019), and the internalization of stigma can erode future orientations (Corrigan et al., 2009). Youth may face judgment and/or criticism from family, friends, and acquaintances in the wake of the stop, and may even experience blame for any wrongdoing on the part of the officer. These experiences might further entrench youth in feelings of indignation, despair, and a sense of hopelessness, which may undermine youth efforts to maintain a positive future outlook.

Finally, beyond the immediate distress and repercussions stemming from a police encounter, the pervasiveness of police in the United States—particularly in marginalized, urban communities—may heighten hypervigilance, avoidance, and worry about future police encounters (Bowleg et al., 2020; DeVlyder et al., 2020; Graham et al., 2020; Smith et al., 2019a, 2019b), which could lead adolescents experiencing contact to perceive little control over their future (McFarland et al., 2019). The uncertainty surrounding if or when future police stops will occur may create difficulties in envisioning (or a hesitance to envision) a bright future with confidence. Adolescents in these situations may feel “stuck” as objects being acted on rather than as free agents forging their own self-appointed path.

*Repercussions of Vicarious Police Contact.* Notably, there are theoretical reasons why vicarious police contact—via witnessing a police encounter or learning of one involving a family member or close friend—can have repercussions for one’s future outlook (even in the absence of personal police contact). Youth can internalize vicarious police contact and use it to reshape their own future outlook. Vicarious encounters can generate concern about the future well-being of friends or family members (Graham et al., 2020), as well as the potential of an individual to experience police contact themselves. For instance, criminological research has long recognized that vicariously experienced stressful events can be internalized as a stain (Agnew, 2002). In relation to police contact, Turney (2020, p. 3) suggested “adolescents may reflect on the vicarious contact, particularly if it is perceived to be discriminatory, and may also envision their own police contact and its consequences.” Geller (2021) noted that witnessing an encounter or knowing someone stopped by the police can negatively impact an individual’s well-being by signaling to a person their own vulnerability. In support of this possibility, prior research has found that police contact negatively influences behavior and psychological well-being even in the case of vicarious, rather than experienced first-hand, stops (McFarland et al., 2019; Turney, 2020). Bor and colleagues (2018) found that police killings of unarmed Black individuals had adverse repercussions on the mental health of Black individuals in the general U.S. population. Likewise, Jackson and colleagues (2021b) found higher levels of emotional distress among youth who reported witnessing police stops, despite not being directly stopped by the police.

*Selection into Adolescent Police Contact.* Another possibility is that there is no independent association between personal or vicarious police contact and adolescent future orientation. Police contact is not randomly distributed across the population and, instead, is concentrated among vulnerable segments of the population. For example, adolescents of color are more likely to experience personal and vicarious police contact than their White counterparts (Geller, 2021; Jackson et al., 2021b), and these adolescents may report lower future orientation resulting from their experiences of racism and discrimination (Herrera, 2009; Nyborg & Curry, 2003). Similarly, police contact is concentrated among those living in disadvantaged and highly surveilled neighborhoods (Rengifo & Fowler, 2016), those who engage in delinquent behavior (Dennison & Finkeldey, 2021), and those whose parents have had contact with the criminal justice system (Geller, 2018). These differences between those who do and do not experience police contact, even prior to exposure to the contact, may imply that the relationship between adolescent police contact and future orientation is spurious.

*Variation in Responses to Police Contact.* Furthermore, it is unlikely that all stops are equally consequential for future orientation. Instead, the repercussions may depend on features of the police stops and on demographic characteristics of the individual experiencing the stop. The erosion of future outlook may be especially consequential when police stops are perceived to be unjust, given that these stops are often experienced as stressful (DeVlyder et al., 2020; Jackson et al., 2020a; McFarland et al., 2019) and stress can impair future orientation (Craig, 2019; Nurmi, 1991,

2005). An unjust police encounter can leave adolescents feeling especially helpless, with few (if any) options to remedy or formally process perceived or actual injustices. This may undermine preexisting perceptions of police legitimacy. In the case of unjust police encounters, adolescents are likely to feel demoralized, which could shape their views about future opportunities (Brunson & Weitzer, 2009).

Responses to personal and vicarious police contact may also vary by adolescent demographic characteristics. Both experiences with police contact and orientations toward the future are stratified by sex and race/ethnicity (Geller, 2018; Johnson et al., 2014; Warner & Swisher, 2015; Zimmerman et al., 2016). Regarding sex differences, police contact is experienced more frequently among men (than among women) and the health consequences of police contact are greater among men than among women (Sewell et al., 2016). Relatedly, women tend to hold a stronger future orientation than men (Borowsky et al., 2009). Taken together, this suggests the negative association between police contact and future orientation is likely greater for men. Alternatively, police contact may be more salient for women because they experience it less frequently, potentially rendering police contact more consequential for their future outlook (Dennison & Finkeldey, 2021; Jones, 2014).

The association between police stops and future orientation may also vary by race/ethnicity. For instance, the prejudice hypothesis suggests that because adverse police contacts are disproportionately experienced by persons of color (Dennison & Finkeldey, 2021; Geller, 2021), individual or vicarious experiences with police “predispose minorities to develop negative attitudes toward police, such as heightened mistrust, which in turn accentuate the negative consequences following police contact” (Dennison & Finkeldey, 2021, p. 260). Moreover, as Black and Hispanic individuals tend to hold more fatalistic attitudes and have lower future orientation compared with White individuals (Borowsky et al., 2009; Davis & Niebes-Davis, 2010; Jamieson & Romer, 2008), experiences with police contact may further erode already limited future orientations and be conducive to nonconventional adaptations that break down one’s outlook of a positive conventional future (Dennison & Finkeldey, 2021). Alternatively, the experience of the expected hypothesis suggests that police contact should be less detrimental for the future orientation of racial/ethnic minorities considering it is fulfilling the preconceived expectations about the normative nature of police contact among minorities (Dennison & Finkeldey, 2021; Slocum & Wiley, 2018). Accordingly, police contact may be more salient for White people because they experience it less frequently, potentially rendering police contact more consequential for their future outlook (Dennison & Finkeldey, 2021; Jones, 2014). Still, as prior research has suggested, another possibility is that association between police contact and future orientation is invariant across youth race/ethnicity (Slocum & Wiley, 2018).

### 3 | CURRENT STUDY

The current study examines the relationship between adolescent police contact and future orientation, expanding upon both research on the repercussions of adolescent police contact and research on the antecedents of future orientation. We examine three research questions. First, does exposure to personal and/or vicarious police contact, compared with no exposure to police contact, reduce future orientation over time? Second, does the association between police contact and future orientation vary by perceptions of procedural justice? Third, does the association between police contact and future orientation vary by sex and race/ethnicity?

## 4 | DATA

To examine the relationship between police contact and future orientation, we use data from the Pathways to Desistance (“Pathways”) study, a longitudinal study of serious offenders followed from adolescence through young adulthood. Individuals were eligible for participation if they were found guilty of a serious offense in the juvenile or adult court system in Maricopa County (Phoenix), AZ, or Philadelphia County, PA. Youth were 14 to 17 years of age during the study recruitment period, with 1,354 individuals enrolled in the study. Those in the Pathways study represent approximately one in three youth adjudicated in each locale during the recruitment period (November 2000 through January 2003). At baseline, participants were mostly non-White (20 percent White, 41 percent Black, 34 percent Hispanic, and 5 percent other race/ethnicity), predominately male (86 percent), and were, on average, 16 years old at their first petition. Additional details regarding the Pathways design, sampling, and methodology can be found elsewhere (Mulvey et al., 2004; Schubert et al., 2004).

In the current analysis, we use data collected at the 10 consecutive follow-up interviews conducted over the course of 84 months.<sup>1</sup> The first six interviews were collected every six months for three years (6-, 12-, 18-, 24-, 30-, and 36-month follow-up waves) and then annually over the remaining four years (48-, 60-, 72-, and 84-month follow-up waves). In each period, we observe information on respondents’ self-reported personal and vicarious police contact, along with detailed information pertaining to their future orientation. In total, the analytic sample includes data on 1,335 individuals ( $N$ ) at an average of 9 time points ( $t$ ), resulting in 11,970 observations ( $Nt$ ). The individuals included in the analytic sample account for 98.6 percent of those enrolled at baseline.

### 4.1 | Measures

#### 4.1.1 | Dependent variable

The dependent variable, future orientation, measures respondents’ views toward key future milestones. This measure comprises seven items adapted from Menard and Elliot (1996) to capture an adolescent’s prediction of their future adult success. At each interview period, individuals rated their perceived likelihood of seven future life events (individually) on a five-point Likert scale (1 = poor, 2 = fair, 3 = good, 4 = very good, 5 = excellent). These items included 1) having a good job or career, 2) graduating from college, 3) earning a good living, 4) providing a good home for the family, 5) having a good marriage, 6) having a good relationship with children, and 7) staying out of trouble with the law. Individuals were also asked to rate the importance of each of these life events (individually) on a five-point Likert scale (1 = not at all important, 2 = not too important, 3 = somewhat important, 4 = pretty important, 5 = very important). Consistent with prior research (Jaynes et al., 2021), future orientation is an average of the likelihood of the events weighted by their perceived importance. Future orientation ranges from 1 to 25, where higher values indicate a more positive future outlook.

*Independent Variable.* The focal independent variable measures respondent police contact during the interview period. Consistent with prior research (McLean et al., 2019), *personal police*

<sup>1</sup>The police contact measures are not available at baseline as personal police contact was a prerequisite for study participation.

*contact* is measured with a binary indicator that “police picked you up and accused you of something in the recall period” (1 = personal police contact, 0 = no personal police contact). *Vicarious police contact* is a binary indicator created using a question that asked respondents “of the people you know who have had a contact with the police (in terms of crime accusation), how much of their story did the police let them tell?” Only those who reported vicarious police contact answered this question, as others have highlighted (Augustyn, 2018; Thompson & Wilson, 2021). Therefore, we use this skip logic to establish a measure of vicarious contact (1 = vicarious contact, 0 = no vicarious contact). Using these two items, we then created a mutually exclusive categorical variable, type of police contact, that classifies respondents as (0) *no additional personal nor vicarious police contact*, (1) *personal police contact*, and (2) *vicarious but not personal police contact*.<sup>2</sup>

#### 4.1.2 | Control variables

We adjust for time-varying behavior, personality, and environment characteristics that may influence one’s police contact and future orientation. Measures of behavior include offending, substance abuse, and gang membership. *Self-reported offending* is measured at each wave via respondents’ reports of their involvement in 22 common delinquency measures (Huizinga et al., 1991). A variety score count captures the number of acts an individual reported participating in. Prior work has highlighted that variety scores are reliable, valid, and less subject to recall bias compared with other strategies used to measure offending (Sweeten, 2012) and are commonly employed in prior research using these data (see Jaynes et al., 2021; Loughran et al., 2016). *Substance dependency* is a count of dependency problems attributed to drugs or alcohol within the recall period (e.g., “you wanted a drink or drugs so badly that you could not think about anything else”; Chassin et al., 1991). Values range from 0 to 10, where a higher score indicates greater substance dependency. *Gang involvement* is a binary indicator of whether a respondent reported being a member of a gang during the recall period (1 = yes, 0 = no).

Next, we account for personality characteristics (i.e., impulsivity) that can influence both criminal justice contact (Beaver et al., 2009; Jackson et al., 2020b) and future outlook (Cheng et al., 2012; Steinberg et al., 2009). *Impulsivity* is measured using an eight-item impulsivity scale from the Weinberger Adjustment Inventory (Weinberger & Schwartz, 1990). Using a 5-point Likert scale (1 = false to 5 = true), respondents rated statements such as “I do things without giving them enough thought” and “I say the first thing that comes to my mind without thinking about it” at each recall period. These items were averaged to produce an impulsivity scale, with higher values indicating greater impulsivity ( $\alpha = .76$  at baseline).

Additionally, to account for environmental context that may be associated with both police contact (Kirk, 2008) and one’s future outlook (Wilson, 1996), we adjust for *neighborhood disadvantage* where individuals responded using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) to the following four items: a) In my neighborhood it’s pretty easy for a young person to get good-paying, honest job (reverse coded); b) in my neighborhood it’s hard to make much money without doing something illegal; c) college is too expensive for most of the people in my neighborhood; and d) I’ll never have as much opportunity to succeed as kids from other neighborhoods.

<sup>2</sup> As expected within this high-risk sample, there are few observations (<5 percent) in which an individual experienced only personal but not vicarious contact. Therefore, our measure of personal contact largely encompasses personal and vicarious contact, with the underlying assumption that personal contact is the most influential experience. This is consistent with prior research on police contact using different data (see Geller & Fagan, 2019; Jackson et al., 2019; McFarland et al., 2019).

The scale is an average of the four items with strong internal reliability ( $\alpha = .80$ ), where higher values indicating greater perceived neighborhood disadvantage. We also adjust for *exposure time*, measured as the proportion of time during the recall period a respondent spent with access to the community (i.e., not in drug/alcohol treatment facility, psychiatric, jail/prison, detention center, youth detention center, and contracted residential general and mental health). We also control for respondents' *age* at each wave. Finally, all models control for  $k-1$  binary variables for the year the survey was administered.

### 4.1.3 | Moderating variables

We assess whether perceptions of procedural justice influence the association between police contact and future orientation, with *procedural justice* adapted from prior research to assess perceptions of police equity and fairness (Tyler, 1997; Tyler & Huo, 2002). The measure of procedural justice is based on an averaged scale of up to 19 items, which demonstrated strong internal reliability ( $\alpha = .80$ ). Table A1 at the end of the article provides a complete list of the scale items.

In the Pathways data, several procedural justice items are asked only conditional on an individual's experience with police contact (see Augustyn, 2018; Pina-Sánchez & Brunton-Smith, 2020; Thompson & Wilson, 2021). Of the total 19 items, 12 items are only asked of respondents who reported being picked up by police during the recall period, and one item is asked only of respondents who reported vicarious contact by the police during the recall period. Accordingly, only six items are asked of all respondents during each wave, regardless of police contact. Therefore, in the main analysis, one's perception of procedural justice is influenced by *only* relevant experiences/items, which are detailed in Table A1. Consistent with the coding scheme of recent research (Augustyn, 2018; Thompson & Wilson, 2021), we also conducted a sensitivity analysis using a four-item measure ( $\alpha = .79$ , items 16–19 in Table A1) and found consistent findings (results available upon request).<sup>3</sup>

We also assess variation in the relationship between police contact and future orientation by demographic characteristics. These include *race/ethnicity* (non-Hispanic *White*, non-Hispanic *Black*, *Hispanic*, or *other* race/ethnicity) and sex (1 = *male*; 0 = *female*).

## 4.2 | Analytic approach

We first present descriptive statistics of the analytic sample. Next, we assess the association between police contact and future orientation using linear fixed-effects models. The fixed-effects models are advantageous because they difference out all time-stable individual characteristics, thereby estimating how within-individual changes in personal and vicarious police contact (relative to no additional police contact) are associated with future orientation (Angrist & Pischke, 2009). Because the fixed-effects estimator only eliminates bias stemming from time-invariant unobserved heterogeneity, we also adjust for observable time-varying characteristics that may be related to both changes in police contact and future orientation. The coefficients from fixed-effects models can be interpreted as estimates of how within-individual contemporaneous changes in

<sup>3</sup>To further assess the robustness of our procedural justice measure, we also employed a binary measure of low procedural justice (scores below the mean) versus high procedural justice (scores at or above the mean). Findings using this dichotomous measure yielded substantively identical findings (results available upon request).

TABLE 1 Descriptive statistics of variables used in analysis ( $N = 1,335$ )

Variable	Mean/%	Standard Deviation	Minimum	Maximum
<b>Dependent Variable</b>				
Future Orientation	17.697	4.775	1	25
<b>Police Contact</b>				
No Additional Police Contact	32.0%		0	1
Vicarious Police Contact	47.2%		0	1
Personal Police Contact	20.9%		0	1
<b>Control Variables</b>				
Self-Reported Criminal Offending	1.316	2.320	0	19
Substance Dependence	.593	1.662	0	10
Gang Involvement	8.7%		0	1
Impulsivity	2.775	.965	1	5
Neighborhood Disorder	2.653	.697	1	5
Exposure Time	67.3%		0	1
Age	19.206	2.351	14	26
<b>Moderating Variables</b>				
Procedural Justice	2.830	.591	1	5
White	20.5%		0	1
Black	40.9%		0	1
Hispanic	33.9%		0	1
Other Race/Ethnicity	4.7%		0	1
Male	86.4%		0	1

police contact over time correspond to within-individual changes in future orientation over time (Angrist & Pischke, 2009; Kropko & Kubinec, 2020). A Hausman test revealed that a fixed-effects approach is a preferred estimation method compared with a random-effects approach. Variance inflation factors (VIFs) were below 1.5, suggesting no serious issues with multicollinearity (Allison, 2012). Our model is specified as follows:

$$\text{Future Orientation}_{it} = U_t + \beta_1 \text{Police Contact}_{it} + \beta_j X_{it} + \alpha_i + \varepsilon_{it}$$

The left-hand side of the equation corresponds to future orientation for individual  $i$  at time  $t$ .  $\beta_1$  represents the coefficient for the focal independent variable—police contact—and  $X_{it}$  represents all time-varying control variables included in the model.  $\alpha_i$  refers to the individual fixed effects, and  $\varepsilon_{it}$  is the error term of each observation.  $U_t$  is an intercept for each period.

## 5 | RESULTS

Table 1 presents the summary statistics of the analytic sample. The analytic sample is primarily male (86.4 percent). Most respondents are Black (40.9 percent) or Hispanic (33.9 percent), with fewer White (20.5 percent) respondents or those of other race/ethnicity (4.7 percent). Across the

TABLE 2 Results of fixed-effects linear regression between police contact and future orientation

Variables	Model 1: Bivariate		Model 2: Control Variables	
	<i>b</i>	SE	<i>b</i>	SE
No Additional Police Contact (reference)	—	—	—	—
Vicarious Police Contact	-.581***	.081	-.425***	.082
Personal Police Contact	-.949***	.099	-.532***	.103
Self-Reported Criminal Offending			-.133***	.019
Substance Dependence			-.062*	.024
Gang Involvement			-.450**	.173
Impulsivity			-.280***	.051
Neighborhood Disorder			-.696***	.062
Exposure Time			-.600***	.106
Age			.285**	.085
Constant	18.169***	.061	16.394***	1.376
Year Dummies	X		✓	
<i>N</i>	1,335		1,335	
<i>N</i> × <i>T</i>	11,972		11,972	

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

Abbreviation: SE = standard error.

study, respondents range in age from 14 to 26 years old. Future orientation scores range from 1 to 25, with an average of 17.7 across observations, indicating respondents felt they had a fairly good chance of obtaining key life-course events they viewed as important. Approximately one third of person-year observations across the study (32.0 percent) did not have any additional police contact following the baseline survey, whereas 47.2 percent of observations had only vicarious police contact and 20.9 percent had personal police contact.

Table 2 presents the results of fixed-effects models estimating the association between police contact and future orientation. Model 1 reports the bivariate association and demonstrates that both vicarious ( $b = -.581, p < .001$ ) and personal police contact ( $b = -.949, p < .001$ ), compared with no additional police contact, are negatively and significantly associated with future orientation. This suggests that experiencing vicarious and personal police contact is associated with a .581 and a .949 within-individual decrease in future orientation, respectively. To put the magnitude of the coefficient in context, the average future orientation score increased by .810 across the 10 waves of data collection. Thus, the observed reduction in future orientation resulting from police contact is meaningful considering the negative influence of personal police contact is greater than the average overall increase in future orientation across the seven-year study. Next, after including the time-varying control variables in model 2, the results remain consistent, with both vicarious ( $b = -.425, p < .001$ ) and personal police contact ( $b = -.532, p < .001$ ) associated with reductions in future orientation.<sup>4</sup> Post hoc Wald tests indicate that although there is a statistically significant

<sup>4</sup> Consistent with the findings of recent research using the Pathways data (Jaynes et al., 2021), we assessed the association between future orientation and offending (measured as a variety score). Findings from a fixed-effects Poisson model with bootstrapped standard errors controlling for time-varying police contact and time-varying controls demonstrated a negative and statistically significant association (Table A2). Within-individual increases in future orientation are associated with within-individual declines in offending ( $b = -.022, p < .001$ ).

**TABLE 3** Results of fixed-effects linear regression between police contact \* procedural justice and future orientation

Variables	<i>b</i>	SE
No Additional Police Contact (reference)	—	—
Vicarious Police Contact	-.610	.354
Personal Police Contact	-.807	.499
Procedural Justice	.031	.094
Vicarious Police Contact × Procedural Justice	.064	.121
Personal Police Contact × Procedural Justice	.095	.174
Self-Reported Criminal Offending	-.131***	.019
Substance Dependence	-.062*	.024
Gang Involvement	-.448*	.173
Impulsivity	-.278**	.051
Neighborhood Disorder	-.690***	.062
Exposure Time	-.600***	.106
Age	.285**	.085
Constant	16.394***	1.376
Year Dummies		✓
<i>N</i>		1,335
<i>N</i> × <i>T</i>		11,971

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

Abbreviation: SE = standard error.

difference between vicarious and personal police contact in model 1 ( $F = 17.16$ ,  $p < .001$ ), there is no statistically significant difference once time-varying controls are included in model 2 ( $F = 1.34$ ,  $p = .247$ ).<sup>5</sup>

With respect to the control variables, the findings suggest that a within-individual increase in offending, substance dependence, impulsivity, perceived neighborhood disorder, and time on the streets are all significantly associated with a reduction in future orientation. Gang involvement is similarly associated with a decrease in future orientation. Finally, age is positively associated with future orientation. The magnitude and statistical significance of the control variables remain substantively consistent across subsequent models below.

Table 3 displays the results of the interaction between (vicarious and personal) police contact and perceptions of procedural justice. Overall, the findings show that procedural justice does not moderate the relationship between vicarious ( $b = .064$ ,  $p = .599$ ) or personal ( $b = .095$ ,  $p = .583$ ) police contact and future orientation. A post hoc Wald test indicates that the magnitude of these coefficients does not significantly differ ( $F = .030$ ,  $p = .853$ ), suggesting that the null findings do not result from “no additional contact” being the reference category.

<sup>5</sup>Although we do not identify a causal relationship between police contact and future orientation, it is important to acknowledge the potential issue of temporal ordering in our key measures as police contact and future orientation are observed contemporaneously. Accordingly, we performed a robustness check where we estimated dynamic fixed-effects models with lagged measures of personal and vicarious police contact (i.e., measured at time  $t - 1$ ). Across these models, the results remained substantively consistent (Table A3). Vicarious police contact retained a negative association with future orientation, but the relationship became marginally statistically significant ( $b = -.168$ ,  $p = .056$ ). Personal police contact retained a statistically significant association with future orientation ( $b = -.365$ ,  $p = .001$ ).

Table 4 stratifies the results by respondent sex and race/ethnicity, adjusting for all time-varying controls. In model 1, the results show that among males, both vicarious ( $b = -.450, p < .001$ ) and personal police contact ( $b = -.534, p < .001$ ) are negatively and significantly associated with future orientation. Among females, in model 2, the results show that only personal police contact is negatively associated with future orientation ( $b = -.688, p = .030$ ). An equality of coefficients test (Paternoster et al., 1998), however, indicates no statistically significant differences in the association between police contact and future orientation between males and females. This holds for both vicarious ( $z = -.690$ ) and personal police contact ( $z = .457$ ). It is important to note that few females are included in the analytic sample ( $n = 182$ ) because of the high-risk nature of the sample. Therefore, the analyses for this subgroup should be interpreted cautiously.

Next, we stratify the model by respondent race and ethnicity (models 3 through 5). Among Black respondents, there is a negative and statistically significant association between vicarious police contact ( $b = -.355, p = .008$ ) and future orientation. Among White respondents, both vicarious contact ( $b = -.523, p = .002$ ) and personal police contact ( $b = -1.023, p < .001$ ) are associated with reductions in future orientation. Finally, among Hispanic respondents, both vicarious ( $b = -.387, p = .007$ ) and personal police contact ( $b = -.395, p = .032$ ) are negatively associated with future orientation. Findings from the equality of coefficients tests reveal that the magnitude of these associations significantly differ when comparing the personal police contact coefficient between Black and White respondents ( $z = 2.878, p = .004$ ) and Hispanic and White respondents ( $z = 2.277, p = .023$ ), highlighting that the negative association between personal police contact and future orientation is larger among White respondents than among Black or Hispanic respondents.

## 6 | DISCUSSION

Considering the growth of proactive policing tactics, expansion of police in schools, and high-profile incidents of police use of force against citizens, research increasingly assesses the adverse consequences of police contact, particularly for adolescents. To date, this research details that adolescent police contact can be a formative experience with repercussions for key life domains including psychological well-being (Del Toro et al., 2019; Jackson et al., 2019; Jackson et al., 2021a; Jahn et al., 2020; Turney, 2020), views toward the law (Hofer et al., 2020; Jackson et al., 2020; Nivette et al., 2020), and educational achievement (Gottlieb & Wilson, 2019; Kirk & Sampson, 2013; Widdowson et al., 2016). The current study expands upon research on the developmental consequences of police contact by providing the first test of the relationship between personal and vicarious police contact and youths' future orientation toward key life milestones. Three main findings emerged from these analyses.

First, the results of fixed-effects models demonstrated that both vicarious and personal police contact were associated with a within-individual decrease in future orientation. The characteristics of police-youth interactions might explain why adolescents with police contact espouse less future orientation. Police stops can tacitly convey to adolescents that they are being surveilled by the state and that they will experience future criminal justice contact, leading them to evaluate their future prospects as diminished. As Weaver and Geller (2019, pp. 211–212) suggested, “police stops of youth communicate to these kids that they are not seen as children but instead as potential offenders and should be singled out for surveillance; they confirm expectations that they will end up in the system, that they are regarded by state authorities as suspicious, deserving of oversight and scorn, and marked as citizen pariahs.” Indeed, negative events have long been theorized to increase hopelessness among adolescents as such events generate negative

TABLE 4 Results of fixed-effects linear regression between police contact and future orientation stratified by sex and race/ethnicity

Variables	Model 1:		Model 2:		Model 3:		Model 4:		Model 5:	
	b	SE	b	SE	b	SE	b	SE	b	SE
No Additional Police Contact (reference)	—	—	—	—	—	—	—	—	—	—
Vicarious Police Contact	-.450***	.090	-.299	.200	-.355***	.133	-.523**	.168	-.387**	.142
Personal Police Contact	-.534***	.109	-.688*	.318	-.268	.163	-1.023***	.205	-.395*	.184
Time-Varying Control Variables	✓		✓		✓		✓		✓	
Year Dummies	✓		✓		✓		✓		✓	
N	1,153		182		546		274		452	
N × T	10,274		1,698		4,809		2,516		4,091	

\*p < .05; \*\*p < .01; \*\*\*p < .001.

Abbreviation: SE = standard error.

attributional responses that can erode positive outlooks and lead to feelings of hopelessness over time (Hamilton et al., 2015; Rose & Abramson, 1992). Even in cases where the police stop was experienced vicariously, rather than personally, we find evidence that such experiences also undermine future orientation. Adolescents may internalize these vicarious experiences and consequently envisage their own police contact and its resultant consequences, thereby undermining their positive outlook. Our findings about the deleterious consequences of police contact are consistent with emerging literature that demonstrates police contact—whether personal or vicarious—can be harmful for adolescent well-being (Geller, 2018; Gottlieb & Wilson, 2019; Jackson et al., 2019, 2021a; Turney, 2020).

Second, the findings revealed that procedural justice did not meaningfully alter the implications of police contact for future orientation. That is, any personal or vicarious police contact, but not the degree of procedural justice associated with such contact, reduces future orientation. These findings stand in contrast with previous research showing that particularly unfair forms of police contact are detrimental for psychological well-being (Dennison & Finkeldey, 2021; Geller, 2018; Jackson et al., 2019; Sewell & Jefferson, 2016; Sewell et al., 2016; Turney, 2020), as well as research showing that negative effects of criminal justice contact for delinquency and legal socialization is mitigated in cases where treatment is perceived as fair (Slocum et al., 2016; Slocum & Wiley, 2018). Even so, considering the sample comprises youthful offenders adjudicated for a serious crime in major metropolitan areas, it may be that factors such as the power differential between police and adolescents, coupled with limited opportunities for future investment in these communities, reduces future orientation even without unfair treatment.

Third, the relationship between police contact and future orientation varied across race/ethnicity. The negative repercussions of police contact were larger for White youth compared with for Black or Hispanic youth. These findings contrast some previous research that has found the psychological health consequences of police stops are greater for Black people than for White people (Alang et al., 2021; Bačák & Nowotny, 2020; McFarland et al., 2019; Turney, 2020). Such findings are consistent, however, with other research that has found the consequences of police contact for well-being and development to be greater among White people compared with among Black or Hispanic people (Dennison & Finkeldey, 2021; Jones, 2014). Our results are consistent with the experience of the expected hypothesis that suggests police contact will be less detrimental for minorities because it has largely become an expected life-course event (Slocum & Wiley, 2018). Indeed, as Dennison and Finkeldey (2021, p. 281) explained, for Black individuals, police contact has become a “normative event in a society that remains riddled with systemic racism. For Whites, however, the stronger association between unfair police treatment and social-psychological consequences in adulthood might be a result of the subjectively shocking, unexpected nature of the experience.” Likewise, it may be that because structural conditions make White people, on average, better positioned to achieve key life milestones, police contact can be more consequential for diminishing the future orientation for White individuals considering that it is a rarer and less expected life event among this group (Chiricos et al., 2007; Dennison & Finkeldey; Massoglia et al., 2013).<sup>6</sup> These findings are consistent with prior research that has demonstrated the labeling impacts of criminal justice contact are greatest for White individuals (Chiricos et al., 2007), as well as research that has shown juvenile arrests carry little stigma and generate little harm for self-concept and social relationships among minority youth from high-poverty urban neighborhoods (Hirschfield, 2008). Future qualitative research would be especially useful to unpack how

<sup>6</sup> Descriptive results from the analytic sample showed that across observations, future orientation is highest among White respondents on average ( $\mu = 18.6$ ) compared with among Black ( $\mu = 17.5$ ) or Hispanic ( $\mu = 17.3$ ) respondents.

police contact differentially influences future orientation across race and ethnicity. Moreover, it would also be valuable for future research to examine the racial variation in the impact of police contact for future orientation among nonoffender samples to determine whether the findings of this study generalize to other populations.

## 6.1 | Limitations

The present study has limitations that can be expanded upon in future research. First, because the Pathways data comprises serious adolescent offenders from two metropolitan areas, the findings may not generalize to other contexts, including samples with less serious offending experiences or samples of rural or suburban areas. The findings speak to a relevant population considering that those with significant and early criminal involvement are most likely to encounter the criminal justice system, but future research should evaluate the questions in this study using samples of individuals without a history of criminal justice contact. Second, although fixed-effects models allowed us to account for time-invariant characteristics and many observable time-varying measures, it remains possible that unobserved time-varying differences influence our results (Bjerk, 2009). Accordingly, results should be interpreted as associations rather than as causal relationships. Third, our measure of future orientation used survey questions focused on several specific expectations about future milestones and achievements. Although this measure is particularly salient considering the role of milestones such as marriage and careers in life-course theory (Laub & Sampson, 2003), future work can also assess this association using alternative measures that focus on more general feelings about the future, such as more general views of optimism, and other measures including expectancy of an early death (Brezina et al., 2009; Jaynes et al., 2021; Piquero, 2016).<sup>7</sup> Fourth, the Pathways measure of police contact lacked details about potentially important features of the police stop, such as the intrusiveness of youth–police contact, the duration of the stop, and feelings of stigma that stemmed from the stop. Future research should assess whether features of a police stop—such as the degree of emotional, verbal, or physical intrusion—are associated with one’s perceptions toward the future. Fifth, the measures of personal and vicarious police contact were both asked pertaining to criminal wrongdoing and therefore may not capture other forms of police contact. Sixth, because police contact was a condition for eligibility into the Pathways study, we do not observe police contact prior to the six-month interview. We cannot, for instance, assess whether an individual was already on a downward spiral of future orientation prior to the police contact that led to study entry. Even so, the study findings provide evidence that additional police contact over time further erodes future orientation, net of offending. To the extent that the largest declines in future orientation may occur during initial police contact, then the findings may be conservative. Still, it would be valuable for future research to investigate whether the impact of police contact on future orientation over time is linear or nonlinear. For instance, the initial police contact may be most impactful for future orientation and then subsequent police contacts matter less (i.e., non-linear growth). Alternatively, repeated police contacts may be particularly demoralizing for one’s prospects, suggesting that the consequences of police contact may grow more severe over time (Geller et al., 2017). Finally, to the extent that police stops are a gateway to further criminal justice processing for some youth, it would be valuable to examine how different forms of criminal justice contact such as arrest, incarceration experiences, and forms of community supervision (i.e., probation and parole) undermine future orientations.

<sup>7</sup> In the Pathways study, perceived-age-at-death is only measured at baseline.

## 6.2 | Implications and conclusion

Despite these limitations, the findings hold important implications for both criminological theory and police–community relations. Theoretically, criminal justice contact is often rooted within a deterrence framework (suggesting that police are key deterrents against crime) or a labeling framework (suggesting that police contact can alter one’s view of self and further entrench an individual in a criminal identity). The current study adds another perspective, suggesting that police contact during adolescence can be a critical life-course event that negatively alters future outlooks. Importantly, because future orientation is a key determinant of criminal activity (Brezina et al., 2009; Jaynes et al., 2021; Piquero, 2016), the findings suggest that police contact with adolescents may be criminogenic, by reducing future outlooks.

The current study also points to police–citizen interactions as an important form of criminal justice contact to be considered within a life-course framework. Although it is well known that incarceration is a turning point in the life course, there has been limited research that has focused on how the police can create substantial and potentially long-lasting change. This oversight is important, considering police are the first and only form of criminal justice contact that most individuals will experience. Moreover, there is growing recognition that police contact and its associated consequences remain significant for the life course (Laub, 2014; Laub & Sampson, 2019), especially for certain subpopulations given that “unfair police contact continues to be a normative life-course event for Black people in the United States” (Dennison & Finkeldey, 2021, p. 254). These findings contribute to this research by documenting that police contact—even the absence of particularly harsh treatment—can create cognitive shifts during a key life-course period, diminishing one’s future outlooks. Future research should investigate how adolescent police contact undermines other key aspects of life-course development as individuals transition to adulthood, including employment and marriage (Laub & Sampson, 2003), and whether diminished future orientation underlies this process.

The findings also have critical policy implications. First, an important issue is reform efforts that change the nature of police–youth interactions in a way that reduces the police surveillance of young persons and promotes greater connections to civic life in a manner that can enhance future orientations (Weaver & Geller, 2019). One option is to invest in efforts that provide resources to low-income and heavily policed communities that bolster the infrastructure for youth to becoming more civically engaged. Weaver and Geller (2019) have recently noted that over the past two decades, many communities have witnessed increased investment in police at the expense of enhanced civic opportunities (i.e., community centers, after-school programs, and youth empowerment programs). Consequently, many youths are now more likely to encounter police rather than organizations that can enhance their social capital and opportunities for a more optimistic future. On a structural level, there are benefits to enhancing investment in community organizations, and using police–youth contact as a point of diversion to connect at-risk youth with community-based organizations as an alternative to criminal justice processing (McCarthy et al., 2016). This may include, when appropriate, diversion of at-risk youth to developmental programs that are psychologically edifying and help them to think about the future in a positive way and offer support for college enrollment and vocational aspirations (Johnson et al., 2014; Nurmi, 2005; Zimbardo & Boyd, 1999). In addition, recent research has suggested that technology can be integrated to minimize the negative impacts of criminal justice contact on future outlooks. Van Gelder and colleagues (2015) demonstrated that having high school youth “befriend” an avatar representing their future self on a social network website was effective at instilling a greater sense of future

orientation, and such increases in the vividness of future self led to lower self-reported delinquency. Given the rise in virtual reality, a sensible application to a criminal justice setting may be to use this technology in the aftermath of a traumatizing police stop, or other types of criminal justice contact, to mitigate any damages to one's sense of self and future orientation (Cornet & Van Gelder, 2020). Considering the importance of future orientation on offending (Brezina et al., 2009; Jaynes et al., 2021; Piquero, 2016), health (Johnson et al., 2014), and generalized life success (Nguyen et al., 2012), it is important that actions are taken to remedy any negative consequences of police contact on the future orientation of adolescents.

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## APPENDIX A

TABLE A1 Procedural justice scale items

	Item	Reverse Coded	Converted to 5-pt Scale	Direct Only	Vicarious Only	Pathways Variable Name
1	During your last contact with the police when you were accused of a crime, how much of your story did the police let you tell?	✓	✓	✓		PJ01RR_
2	The police treat me the same way they treat most people my age.			✓		PROJUS5_
3	Over the last couple of years, the police have been treating me the same way they always treated me in the past.			✓		PROJUS6_
4	During my last encounter with the police, they treated me in the way that I expected they would treat me.			✓		PROJUS7_
5	During my last encounter with the police, they treated me in the way that I thought I should be treated.			✓		PROJUS8_
6	Even after the police make a decision about arresting me, there is nothing I can do to appeal it.	✓				PJ14R_
7	Even after the police make a decision about arresting me, someone in higher authority can listen to my case, and even in some cases, change the decision.					PROJUS14_
8	Police considered the evidence/viewpoints in this incident fairly.			✓		PROJUS17_

(Continues)

TABLE A1 (Continued)

	<b>Item</b>	<b>Reverse Coded</b>	<b>Converted to 5-pt Scale</b>	<b>Direct Only</b>	<b>Vicarious Only</b>	<b>Pathways Variable Name</b>
9	Police overlooked evidence/viewpoints in this incident.	✓		✓		PJ19R_
10	Police were honest in the way they handled their case.			✓		PROJUS19_
11	Police used evidence that was fair and neutral.			✓		PROJUS20_
12	Police made up their mind prior to receiving any information about the case.	✓		✓		PJ22R_
13	Think back to the last time the police accused you of doing something wrong. Did the police treat you with respect and dignity or did they disrespect you?	✓	✓	✓		PJ36RR_
14	Think back to the last time the police accused you of doing something wrong. Did the police show concern for your rights?	✓	✓	✓		PJ37RR_
15	Of the people you know who have had a contact with the police (in terms of crime accusation), how much of their story did the police let them tell?	✓	✓		✓	PJ02RR_
16	Police treat males and females differently.	✓				PJ28R_
17	Police treat people differently depending how old they are.	✓				PJ29R_
18	Police treat people differently depending on their race/ethnic group.	✓				PJ30R_
19	Police treat people differently depending on the neighborhoods they are from.	✓				PJ31R_

## APPENDIX B

TABLE A2 Results of fixed-effects poisson regression between police contact, future orientation, and self-reported offending

Variables	<i>b</i>	SE
Future Orientation	-.022**	.004
No Additional Police Contact (reference)	—	—
Vicarious Police Contact	.213***	.033
Personal Police Contact	.729***	.038
Substance Dependence	.124***	.007
Gang Involvement	.334***	.060
Impulsivity	.253**	.024
Neighborhood Disorder	.122***	.027
Exposure Time	.191***	.044
Age	-.088**	.033
Year Dummies		✓
<i>N</i>		1,195
<i>N</i> × <i>T</i>		10,799

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

Abbreviation: SE = standard error.

## APPENDIX C

TABLE A3 Results of dynamic fixed-effects linear regression between police contact and future orientation

Variables	<i>b</i>	SE
Lagged Additional No Police Contact (reference)	—	—
Lagged Vicarious Police Contact	-.168	.088
Lagged Personal Police Contact	-.365**	.107
Self-Reported Criminal Offending	-.127***	.021
Substance Dependence	-.082**	.026
Gang Involvement	-.427*	.191
Impulsivity	-.293***	.055
Neighborhood Disorder	-.736***	.066
Exposure Time	-.679***	.115
Age	.069	.124
<i>N</i>		1,335
<i>N</i> × <i>T</i>		11,972

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

Abbreviation: SE = standard error.