



The criminogenic and psychological effects of police stops on adolescent black and Latino boys

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Proactive policing, the strategic targeting of people or places to prevent crimes, is a well-studied tactic that is ubiquitous in modern law enforcement. A 2017 National Academies of Sciences report reviewed existing literature, entrenched in deterrence theory, and found evidence that proactive policing strategies can reduce crime. The existing literature, however, does not explore what the short and long-term effects of police contact are for young people who are subjected to high rates of contact with law enforcement as a result of proactive policing. Using four waves of longitudinal survey data from a sample of predominantly black and Latino boys in ninth and tenth grades, we find that adolescent boys who are stopped by police report more frequent engagement in delinquent behavior 6, 12, and 18 months later, independent of prior delinquency, a finding that is consistent with labeling and life course theories. We also find that psychological distress partially mediates this relationship, consistent with the often stated, but rarely measured, mechanism for adolescent criminality hypothesized by general strain theory. These findings advance the scientific understanding of crime and adolescent development while also raising policy questions about the efficacy of routine police stops of black and Latino youth. Police stops predict decrements in adolescents' psychological well-being and may unintentionally increase their engagement in criminal behavior.

policing | psychological well-being | adolescents | delinquency | gender

Proactive policing has radically changed how America experiences public safety. Instead of reacting to calls for service as was typical through the 1950s, police agencies now seek to prevent crimes by proactively deploying officers in places where crime is likely to be reported and interacting with the people most likely to be accused of crimes (1). This policing strategy results in more frequent contact between police and individuals within neighborhoods where police are disproportionately assigned (2). The approach has generated a significant body of research aimed at determining its effects on crime. A recent National Academies of Sciences review supports existing research that proactive policing strategies seem to lower crime (1).

However, that same report laments that quantitative research on proactive policing has mostly ignored effects on crime rates over long periods of time and with youth. The report also acknowledges a growing body of literature that suggests that proactive policing can negatively affect the public legitimacy of law enforcement (3, 4), even motivating avoidance of law-related officials altogether (5–8). Finally, the report laments a dearth of quantitative research on the effects of proactive policing on racial disparities or youth criminality. The present article addresses that research gap by studying how contact with police may influence criminally delinquent behaviors by black and Latino adolescent boys across a 2-y period. Our findings raise concern that police stops may increase the likelihood that adolescents will engage in subsequent delinquent behavior.

The idea that proactive policing will reduce crime is premised on deterrence theory (9, 10). Broadly, there are three types of

deterrence theory most relevant to the present research: general, specific, and focused deterrence. General deterrence predicts that the publicity of punishment indirectly deters all individuals' engagement in future crime, whereas specific deterrence argues that the punishment of individuals who engage in crime will deter those individuals' future lawbreaking behavior (10, 11). General and specific deterrence theories militate in favor of greater police contact in areas with greater rates of crime (11). Despite the shared implication, neither literature offers much empirical evidence of the consequences of elevated levels of police contact for youth or over the long term (1). Focused deterrence, on the contrary, suggests that increased contact with non-rule-breakers—rather than the violent and frequent offenders for whom the intervention is designed—exacerbates public mistrust of police, reducing police efficacy to reduce violent crime (12–14). Although most quantitative studies support that proactive policing is associated with reduced crime (12, 15–19), there is no consensus in the literature: some studies find no relationship (20) whereas others find that proactive policing may be counterproductive (21–25).

The present research seeks to translate and specify assumptions from three prominent theories of juvenile criminal involvement: labeling, life course, and general strain theories. Labeling theory predicts that official intervention increases the probability of adolescent delinquency over time because the intervention triggers exclusionary processes that adversely affect

Significance

Four waves of longitudinal survey data demonstrate that contact with law enforcement predicts increases in black and Latino adolescents' self-reported criminal behaviors 6, 12, and 18 months later. These results are partially mediated by psychological distress. The younger boys are when stopped for the first time, the stronger these relationships. Boys' race and prior engagement in delinquent behaviors did not moderate the effect. These findings fill a gap in the research literature on labeling, life course, general strain, and deterrence theories. To our knowledge, the relationships among police contact, psychological strain, and subsequent criminal behavior for young boys had not been tested quantitatively before. These findings raise policy questions about the influence of proactive policing on the trajectory of children.

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engagement in prosocial opportunities, such as employment, educational attainment, and identification with positive peer groups (26–28). This may explain why some researchers find that, regardless of their history of delinquent behavior, adolescents who experience police contact show subsequent increases in their delinquent behaviors (29–31). Previous research on life course theory also suggests that encounters with criminal legal systems (such as police stops and arrests) result in labeling that predicts negative life course trajectories (29, 32, 33) and that unfair or abusive treatment results in similar outcomes (34).

General strain theory argues that aggregate and/or acute stressors increase the likelihood of criminal behaviors because the anger and psychological distress that result from stress provoke one to engage in delinquent acts (35, 36). General strain theory would posit that police contact should produce subsequent increases in delinquent behavior via increased distress. Our goal, then, is to test the mechanism hypothesized by general strain theory in the context of police stops and their potential criminogenic associations with delinquent behavior for nonwhite boys.

Existing research supporting the idea that police contact can be criminogenic among nonwhite communities is predominantly qualitative (24, 30, 33, 37). Many of these studies speak to the prevalence of punitive enforcement and high levels of surveillance among nonwhite communities (38–44), particularly among nonwhite boys and young men (21, 23, 45, 46). Qualitative studies illustrate that nonwhite boys and young men experience pedestrian stops as physically invasive and abusive (20, 21, 22, 35, 36). Findings from these studies further suggest that the broken trust resulting from these interactions may predict engagement in delinquent behavior for law-abiding nonwhite boys and young men (7, 8, 25). Consistent with this qualitative work, quantitative research also suggests that police-initiated contact is associated with diminished psychological well-being and physical health for nonwhite boys and young men (47–49). Convergent findings between quantitative and qualitative approaches to experiences of discrimination serve as further support for our hypotheses (50, 51), but neither has identified the psychological mechanism through which police stops are associated with subsequent criminal behavior. This gap is likely attributable to the study of psychological and criminogenic consequences of policing as discrete outcomes (4, 6, 39, 47–49). Thus, the underlying psychological mechanism through which policing produces crime is often articulated, but rarely quantitatively measured (47, 49).

To date, there is no consensus on whether proactive policing deters criminal behavior among young people. The assumptions of proactive policing—supported in cross-sectional and longitudinal research of adult samples—are in opposition to those in labeling, life course, and general strain theories. Despite considerable variation in empirical design, few studies have tested these competing hypotheses over time and with a sample of adolescent boys (1). To remedy this, we used a longitudinal design to test for the temporal ordering between police contact and delinquent behavior. If findings reveal that police stops predict subsequent increases in delinquency among adolescents, the results pose a critical challenge to dominant criminal justice orthodoxy, as elements of proactive policing have been adopted by nearly all police departments in the United States.

Motivated by the call from the National Academies of Sciences (1), this research advances the science of proactive policing and deepens our understanding of how contact with police may affect adolescents' psychological well-being. The present study relies on longitudinal survey data to answer several research questions about the relationship between police stops and delinquency among black and Latino adolescent boys. Beginning in the fall of ninth grade, participants in the study were surveyed every 6 mo across their first two years in high school. Participants reported on their contact with law enforcement, psychological distress, delinquent behaviors, and a number of control variables.

We asked the following research questions: are pedestrian stops by police associated with greater subsequent delinquent behavior, and is this relationship mediated by psychological distress?

Our study examines three hypotheses. Consistent with labeling, life course, and general strain theories, our first is that boys who were stopped by police would report greater subsequent involvement in delinquent behaviors, regardless of the initial level of delinquency reported in the baseline survey. Second, drawing from general strain theory, we predicted that psychological distress would mediate the relationship between police stops and delinquency. In other words, we hypothesized that police stops would predict greater psychological distress, which in turn would predict greater delinquent behavior. Finally, in line with specific deterrence theory, our third hypothesis was that delinquent behavior would independently produce subsequent police contact. To test all three hypotheses, we used four waves of repeated measures to estimate a cross-lagged autoregressive longitudinal mediation model in which we estimated our hypothesized pathways and tested for reverse causal directions (e.g., whether delinquent behavior predicted more pedestrian stops in later waves). In addition to these core hypotheses, we explored important group differences within our subject population. Namely, we sequentially tested whether boys' race, prior engagement in delinquent behavior, and age at first contact would moderate the observed relationships.

Methods

Participants. Boys in the present study participated in a large, mixed-method longitudinal study of adolescents' experiences across peer, school, family, and neighborhood contexts during the high school years ($N = 1,401$). Our analyses focused on longitudinal relationships between police contact, psychological distress, and delinquent behavior for self-identified nonwhite boys with all relevant demographic data. This required us to exclude those who did not provide racial identification data or who self-identified as white ($n = 18$), those who did not provide important variables such as age or country of birth ($n = 101$), and those who responded to fewer than 25% of survey items as a result of missing or incomplete surveys ($n = 637$), as that precluded our ability to execute reliable longitudinal analyses. Adhering to these exclusion criteria provided a sample for which we could run a conservative test of our hypotheses, leaving us with an analytic sample of 645 respondents. Boys in our sample self-identified as Latino (57.5%), black (23.1%), and "other" nonwhite (19.4%). It is likely that our participants' cultural, ethnic, and racial identities are more complex than these categories suggest. For the sake of brevity, however, this article refers to these identities as "racial" groups. This shorthand does not represent a claim that these groups constitute monolithic "races" or cultures, nor that the concepts of race, culture, or ethnicity have any objective meaning independent of their social context. Among the "other" nonwhite boys, 89.6% identified as multiracial (black and Asian, Latino and Asian, black and Latino, black and white, or Latino and white), 8.8% identified as Asian/Pacific Islander, and 1.6% identified as "other" nonwhite. The mean age of boys in this sample at wave 1 was 14.95 y ($SD = 0.72$). Slightly less than half of the sample (48.5%) had a paying job at some point during the 2 y of the study. Foreign-born participants contributed to 14.9% of the sample. Youth in our study came from three different family types: two-parent households (55.0% of respondents), single-parent households (29.6%), and "other" caregivers, such as grandparents, other relatives, or foster parents (15.3%). Our final analyses controlled for potential confounding demographic factors as detailed later.

Procedure. Boys were selected as the focus of this research because of their overrepresentation among youth who experience arrest or other contact with law enforcement (37, 52). Police stops overwhelmingly involve nonwhite boys. For example, in New York City in 2016, more than 90% of people subjected to police stops were male, 52% black, 29% Latino, 10% white, and 47% juveniles and young adults aged 14–24 y (53). Of juveniles who experienced police encounters, only 7.2% were female and 7.5% were white (53). Our focus on nonwhite boys allowed us to study the population most likely to be stopped by police, allowing for the greatest variation in police contact and affording the best opportunity to observe any significant relationships between police contact and subsequent behavior. We recruited boys from six public high schools in high-intensity policing neighborhoods (according to the local police department) of a large city in the southern United States.

Although our goal was to recruit boys from all public high schools in the city, the partnering city selected the six schools from which we could recruit boys. Thus, our sample may not be representative of boys in this city or in other southern urban school districts given the nonrandom nature of the school selection. At wave 1, boys in these six schools were eligible to participate in the study if they were enrolled in a ninth-grade physical education course. This class was the most consistently attended by members of our target population, which facilitated our recruitment efforts. Participants were first surveyed in September 2013, during the fall of ninth grade. Surveys were readministered every 6 mo, during spring 2014 in physical education class, and during fall 2014 and spring 2015 in tenth-grade history class (a required course). We anticipated attrition because a large proportion of boys attending these schools had sporadic or poor attendance, repeated grades, transferred between schools, or left school altogether (54). To bolster participation, additional boys were invited to opt into the study in later waves. Missing data and retention rates are reported later. The institutional review boards at the University of California, Los Angeles, approved all procedures. The Center for Policing Equity will be able to provide researchers with deidentified data provided they agree to confidentiality provisions included in the center's memorandum of understanding with the school district.

Child assent was collected before survey administration. Parental consent forms were distributed at the time of survey administration and returned later. Research assistants organized a pizza party at each school to motivate students to bring back parental consent forms. Regardless of whether their parent or guardian provided affirmative consent, each student who completed a survey was entered into a raffle to win a prize (e.g., gift cards and iPods) at the end of each academic year.

Of the 1,593 boys whom we could sample from across the six schools, 88% ($n = 1,401$) provided affirmative assent and parental consent. If parents provided consent at one wave and denied consent at a later wave, their child was not included in the study. Parental consent was waived for boys older than 18 y. Parental consent was not collected for each wave, as many students reported that it was difficult to touch base with a parent within the short window (typically 2 d) allotted to return the consent form to study staff at each wave. We received approval for waiver of parental consent from the institutional review boards at the University of California, Los Angeles, to include students who provided parental consent at least once during the data collection. It was important that we included boys who were unable to obtain parental consent for each of the four waves of data collection so that home-life situations would not bias the sample of people from whom we were able to collect only parental consent.

Measures.

Police stops. We used an aggregate of two items to assess adolescents' self-reported experiences of pedestrian stops (stops occurring while on foot) by the police. Using a five-point Likert scale, these two items assessed the frequency with which adolescents had been stopped by police in the previous 6 mo, with or without a search (e.g., "In the past 6 mo, how many times were you stopped and frisked by the police while walking?" and "In the past 6 mo, how many times were you stopped and NOT frisked by the police while walking?," with 1 representing never and 5 representing four or more times). These measures were not intended to capture interactions with school resource officers or other law enforcement inside the school building, and likely provide a conservative measure of adolescents' overall contact with police. Bivariate correlations (r) between these two survey items were 0.52, 0.57, 0.58, and 0.65 at waves 1, 2, 3, and 4, respectively. These correlations were lower than the desired 0.60, in part, because mean scores at each survey administration were close to 1 on a scale of 1–5 [mean (M)_{wave1} = 1.17, SD _{wave1} = 0.58; M _{wave2} = 1.37, SD _{wave2} = 0.73; M _{wave3} = 1.32, SD _{wave3} = 0.69; M _{wave4} = 1.29, SD _{wave4} = 0.71].

Delinquency. We assessed delinquency by using the average of a 15-item measure adapted from the National Survey of Delinquency and Drug Use (55, 56). Prior studies have used comparable measures for similar adolescent populations, including for black and Latino boys (57–59). These items assessed various types of adolescent delinquent acts (e.g., "In the last 6 mo, have you stolen, or tried to steal, something worth more than \$50?"). A three-point Likert scale was used for this measure during wave 1 of the study (1, never; 2, one to three times; and 3, four or more times), and a seven-point Likert scale was used for all subsequent waves (1, never; 7, two to three times a day). To ensure consistency in the response range of the Likert scale across each wave, we rescaled the seven-point response scale used during waves 2, 3, and 4 to correspond to the three-point scale used during wave 1 (e.g., 1 = 1, i.e., never; 2–4 = 2, i.e., one to three times; and 5–7 = 3, i.e., four or more times). In other words, the "never" response category (i.e., 1) was consistent across the four waves, Likert responses 2–4 during waves 2–4 were

rescaled to equal 2, and Likert responses 5–7 during waves 2–4 were rescaled to equal 3. Thus, Likert responses across all waves ranged from 1 to 3. We found high internal consistency across the four waves of the study (α range = 0.92–0.96). A high score on delinquency measures indicated more frequent self-reported delinquent behavior.

Psychological distress. We assessed psychological distress at each wave by using a structural equation model framework. We measured psychological distress as a latent variable by using mean scores of students' self-reported stress levels ("I found it hard to wind down;" α range = 0.89–0.94), depression ("I felt downhearted and blue;" α range = 0.90–0.94), and anxiety ("I felt I was close to panic;" α range = 0.88–0.89) in the past 6 mo. Each measure was derived from the Depression, Anxiety, and Stress Scale (60), contained seven items, and used a four-point Likert scale (0, never; 3, almost always). To ensure that psychological distress was assessed consistently across time, we conducted a multigroup confirmatory factor analysis by using time as a grouping variable. The results met the criteria for measurement (scalar) invariance across time: $\chi^2(54) = 129.70$, $P < 0.001$, root mean square error of approximation (RMSEA) = 0.05 (0.04–0.06 CI), comparative fit index (CFI) = 0.97, standardized root mean square residual (SRMR) = 0.04. Higher scores on psychological distress reflected poorer psychological adjustment.

Control Variables. Our final analyses adjusted for several covariates, including participants' age, racial/ethnic identification (using Latino as the reference group against which black and "other" youth were compared), country of birth (0, United States-born; 1, foreign-born), and schools. We used two proxies to indicate aspects of adolescents' socioeconomic status: whether the student had been employed at any time during the 2-y period of the study (0, youth has never had a job; 1, youth has ever been employed) and his parent-household characteristics. For the parent-household characteristics variable, we used youth from a two-parent household as the reference group to contrast against youth in a single-parent household and youth in "other" households. To account for the effects of additional potential influences on reported delinquency, such as those of neighborhood resources and peer group influence, we controlled for schools as fixed effects in our final model. Across all covariates, we used the group with the largest number of observations as the reference.

We also adjusted for other potential confounding variables, including negative affect, stereotype threat from police, perceived procedural justice, academic achievement, and police stops while driving. These measures were all reported at each wave of survey administration. Each of these could reasonably be expected to be exacerbated by prior contact with police and could reasonably be expected to predict subsequent engagement in criminal behaviors. Across these measures, boys who opted into the study after the wave 1 survey administration did not differ significantly from boys who were recruited at wave 1 and returned later in the study. For this reason, we controlled for scores collected during wave 1, as they represented a baseline measure.

To measure adolescents' negative affect, we aggregated 10 items from the Positive and Negative Affect Scale (61), which captured the extent to which adolescents, on average, felt distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, or afraid ($M = 2.07$, $SD = 0.76$, $\alpha = 0.69$). To measure stereotype threat—that is, the degree to which respondents felt concern that police might stereotype them as criminals—we used a five-item measure (e.g., "I worry that the police officer might stereotype me as a criminal because of my race") from the Expected Stereotype Threat Scale (62), which was modified from an earlier iteration of the Explicit Stereotype Threat Scale (63, 64). We found acceptable internal reliability for these results ($M = 2.78$, $SD = 1.75$, $\alpha = 0.95$). To measure perceptions of procedural justice, we used a 14-item measure (65). These 14 items assessed the degree to which respondents agreed that the law and police were fair or just (e.g., "The law represents the values of people in power rather than people like me," "Most police in [my city] treat some people better than others"). These items held reliable internal consistency ($M = 3.88$, $SD = 0.91$, $\alpha = 0.77$). We assessed academic achievement using adolescents' self-reported grade point average, which ranged from 0 to 4 ($M = 2.92$, $SD = 0.84$).

The boys in our study experienced two types of police stops: pedestrian stops and vehicle stops. According to previous research with similar populations (23, 66), stops most likely took place in boys' neighborhoods, outside of school. Because pedestrian stops tend to be more physically invasive than vehicle stops, we analyzed pedestrian stops and used vehicle stops as a covariate (only 10% of boys in our sample experienced any vehicle stops). In this article, "police stops" refers to pedestrian stops unless otherwise indicated.

Missing Data. In our analytic sample ($n = 645$), 158 boys (24.5%) participated in all four waves of the study. This represented one third (33.3%) of the 474 students who were recruited at wave 1. Of the 95 students who were

Results

Over the course of the 2 y during which boys were surveyed, 40% of the sample ($n = 259$) experienced at least one police stop. Table 1 presents mean scores and SDs for all study variables across each wave. This finding indicates that police stops ($M_{\text{wave1}} = 1.17$, $SD_{\text{wave1}} = 0.58$; $M_{\text{wave2}} = 1.37$, $SD_{\text{wave2}} = 0.73$; $M_{\text{wave3}} = 1.32$, $SD_{\text{wave3}} = 0.69$; $M_{\text{wave4}} = 1.29$, $SD_{\text{wave4}} = 0.71$) and delinquent behavior ($M_{\text{wave1}} = 1.15$, $SD_{\text{wave1}} = 0.28$; $M_{\text{wave2}} = 1.18$, $SD_{\text{wave2}} = 0.36$; $M_{\text{wave3}} = 1.14$, $SD_{\text{wave3}} = 0.32$; $M_{\text{wave4}} = 1.18$, $SD_{\text{wave4}} = 0.39$) were infrequent across all four waves of the study and were low relative to findings in previous research (49, 73). We found few mean differences across racial groups. Differences did not emerge by race on adolescents' experienced police stops. "Other" nonwhite adolescents reported more frequent delinquent behavior than Latino adolescents during waves 1 and 3, but no differences emerged during waves 2 and 4. Across all waves, Latino and black adolescents reported similar frequencies of police stops and engagement in delinquent behavior.

Preliminary results included an unconditional bivariate model that examined the interrelationships between police stops and delinquency across the four waves. In this model, police stops predicted greater subsequent engagement in delinquent behavior 6 mo later ($b = 0.10$, $SE = 0.03$, $P < 0.01$), but delinquency did not predict subsequent police stops 6 mo later [$b = 0.15$, $SE = 0.08$, P value not significant (NS)]. This model fits the data well: $\chi^2(17) = 21.48$, $P = \text{NS}$, $\text{RMSEA} = 0.02$, $90\% \text{ CI} = 0.00\text{--}0.04$, $\text{CFI} = 0.98$, $\text{SRMR} = 0.07$.

Stops, Psychological Stress, and Delinquency. In the *SI Appendix*, we report results from a series of stepwise multilevel models in a sequential fashion to build our final model (*SI Appendix, Model Construction*). As a result of these analyses, we present our final model in Fig. 2, as described as follows.

Because measures of police stops, psychological stress, and delinquent behavior were measured across multiple waves, we

were able to test for a series of temporal relationships, all of which are reported in Fig. 2. First, we tested the relative stability of each construct across each wave. We found that adolescents' reports on each construct were stable every 6 mo: police stops ($b = 0.41$, $SE = 0.07$, $P < 0.001$), psychological distress ($b = 0.31$, $SE = 0.04$, $P < 0.001$), and delinquency ($b = 0.30$, $SE = 0.06$, $P < 0.001$). These coefficients and SEs also indicate that adolescents' rank order in each construct was stable across time. In other words, boys who reported being stopped by police were likely to report being stopped again in subsequent waves, boys who reported psychological distress were likely to report distress again in subsequent waves, and boys who reported engaging in delinquent behavior were likely to report engaging in delinquent behavior again in subsequent waves, after adding our covariates.

Our analyses controlled for cross-sectional relationships among police stops, psychological distress, and delinquency within each wave. At wave 1, adolescents who had experienced more frequent police stops reported greater concurrent distress ($b = 0.02$, $SE = 0.01$, $P < 0.05$) and greater concurrent delinquency ($b = 0.04$, $SE = 0.01$, $P < 0.001$) than adolescents who experienced less frequent police stops. Adolescents who reported greater psychological distress also reported greater concurrent delinquency ($b = 0.05$, $SE = 0.01$, $P < 0.001$). These cross-sectional relationships at wave 1 were consistent with cross-sectional relationships found at waves 2, 3, and 4. These findings reveal that police stops, distress, and delinquency were contemporaneously related with one another. Although these relationships are meaningful and partially consistent with our hypotheses, they do not address the questions of why such relationships exist or what the temporal ordering is between them.

To control for the stability of each construct across each wave and for the cross-sectional relationships between the three constructs, we estimated longitudinal pathways to test whether significant relationships emerged between constructs over time. Across the four waves, we found that, the more police stops a boy

Table 1. Mean (SD) of all study variables across each wave for the entire sample and by boys' ethnicity/race

Measures	Entire sample	Black boys	Latino boys	"Other" nonwhite boys
Police stops				
Wave 1	1.17 (0.58)	1.17 (0.51)	1.14 (0.47)	1.28 (0.85)
Wave 2	1.37 (0.73)	1.49 (0.74)	1.32 (0.77)	1.37 (0.76)
Wave 3	1.32 (0.69)	1.44 (0.84)	1.26 (0.59)	1.34 (0.73)
Wave 4	1.29 (0.71)	1.37 (0.79)	1.24 (0.63)	1.35 (0.83)
Stress				
Wave 1	0.45 (0.70)	0.35 (0.56)	0.45 (0.70)	0.55 (0.81)
Wave 2	0.59 (0.62)	0.59 (0.58)	0.57 (0.61)	0.65 (0.70)
Wave 3	0.56 (0.57)	0.56 (0.56)	0.52 (0.55)	0.67 (0.65)
Wave 4	0.57 (0.59)	0.67 (0.60)	0.52 (0.55)	0.65 (0.69)
Anxiety				
Wave 1	0.44 (0.62)	0.32 (0.51)	0.44 (0.59)	0.52 (0.76)
Wave 2	0.53 (0.57)	0.53 (0.56)	0.52 (0.57)	0.54 (0.62)
Wave 3	0.50 (0.56)	0.45 (0.51)*	0.47 (0.53)*	0.64 (0.67)†
Wave 4	0.49 (0.57)	0.48 (0.54)	0.47 (0.55)	0.54 (0.64)
Depression				
Wave 1	0.49 (0.57)	0.32 (0.47)*	0.50 (0.69)*,†	0.64 (0.83)†
Wave 2	0.54 (0.61)	0.49 (0.52)	0.53 (0.58)	0.59 (0.74)
Wave 3	0.52 (0.61)	0.48 (0.54)	0.50 (0.60)	0.52 (0.61)
Wave 4	0.53 (0.60)	0.59 (0.63)	0.50 (0.57)	0.56 (0.64)
Delinquency				
Wave 1	1.15 (0.28)	1.17 (0.31)*,†	1.12 (0.24)*	1.21 (0.34)†
Wave 2	1.18 (0.36)	1.18 (0.34)	1.18 (0.36)	1.19 (0.38)
Wave 3	1.14 (0.32)	1.14 (0.30)*,†	1.11 (0.28)*	1.22 (0.44)†
Wave 4	1.18 (0.39)	1.21 (0.41)	1.15 (0.36)	1.23 (0.44)

Different symbols across the rows indicate significant ethnic/racial group differences at $P < 0.05$.

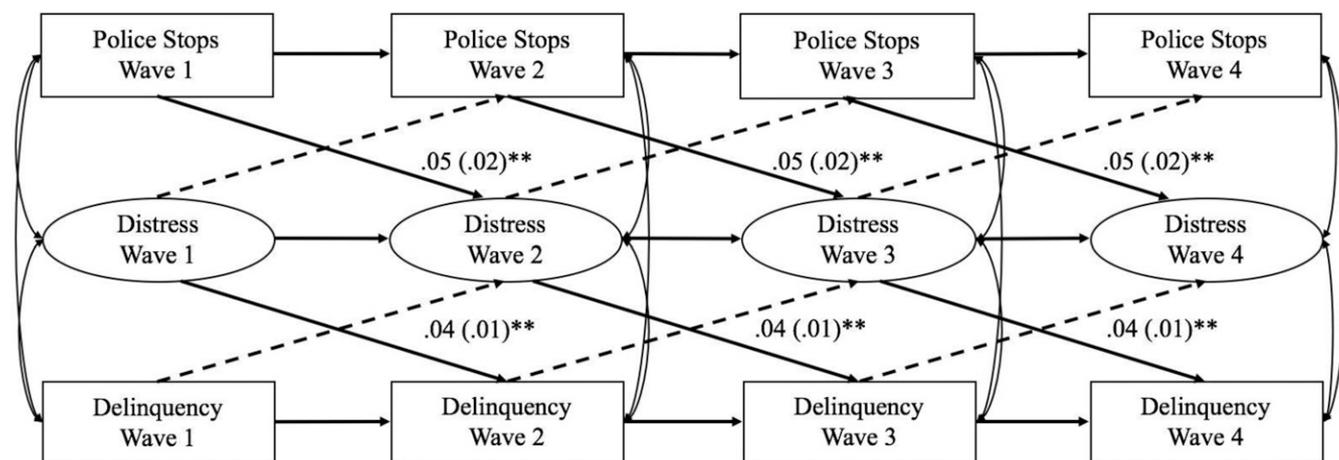


Fig. 2. Cross-lagged autoregressive mediation path model's unstandardized coefficients (i.e., SEs) with measures of adolescents' self-reported experienced police stops, psychological distress, and delinquency (* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$, two-tailed test).

experienced, the more distress he reported 6 mo later ($b = 0.05$, $SE = 0.02$, $P < 0.01$). By contrast, distress at one wave did not independently predict police stops 6 mo later ($b = 0.07$, $SE = 0.10$, $P = NS$). We also found that distress predicted greater delinquency 6 mo later ($b = 0.04$, $SE = 0.01$, $P < 0.01$), but delinquency did not predict distress over the same period ($b = -0.02$, $SE = 0.03$, $P = NS$).

Consistent with our hypotheses, we found that police stops reported at wave 1 had a significant indirect relationship with a boy's self-reported delinquency at wave 3 via distress at wave 2 ($b = 0.01$, $SE = 0.00$, $P < 0.05$). Similarly, police stops at wave 2 had a significant indirect relationship with wave 4 delinquency via wave 3 distress ($b = 0.01$, $SE = 0.00$, $P < 0.05$). Police stops also directly predicted delinquency 6 mo, 12 mo, and 18 mo after the stop ($b = 0.05$, $SE = 0.02$, $P < 0.01$). Our model fits the data well [$\chi^2(357) = 582.25$, $P < 0.001$, $RMSEA = 0.03$, 90% $CI = 0.03$ – 0.04 , $CFI = 0.95$, $SRMR = 0.04$] and suggests that psychological distress partially mediated the longitudinal relationship between police stops on subsequent delinquency.

We did not find evidence consistent with our third hypothesis. We found no relationship between an adolescent's self-reported delinquency at one wave and police stops at subsequent waves.

Magnitude of Police Stops' Influence on Adolescent Delinquency. We obtained standardized coefficients to determine the magnitude of the relationship between police-initiated contact and adolescents' delinquency. The direct effect between police-initiated contact and adolescents' delinquency was 0.10, meaning that each police stop predicted an increase in delinquent behavior 6 mo later by 0.10 SD on a one-to-three Likert scale, which is a small effect size. By the end of the four-wave study, more than 40% of our sample had been stopped by police at least once. The 78 boys (approximately 12% of our sample) who were stopped five times or more during the course of our study reported an increase in deviant behavior by 0.50 SD in a one-to-three-point Likert scale, which is a moderate effect size. Moreover, because of the higher attrition rates exhibited among the boys at highest risk of being stopped (as discussed earlier), the 78 boys whose experiences are captured in these analyses likely represent an underestimate of the number of participants in the broader study who may have experienced high numbers of stops. Because the high-contact subsample that remained in our study may not be representative of the broader high-contact population, we encourage future research to target this particularly vulnerable population. Furthermore, our findings were robust across a series of analyses that are reported in the *SI Appendix*.

Sensitivity Analyses. We performed a series of sensitivity analyses to examine the degree to which our findings held true for youth by race, history of delinquent behavior, and age at their first police stop. To ascertain whether the observed relationships varied by a boy's racial identification, we ran multigroup analyses on our final model using boys' racial identification as a grouping variable. We found no variation by race, suggesting that the process by which police contact predicts increased subsequent delinquent behavior operated similarly for black, Latino, and "other" nonwhite boys. We also found that, at each wave of the survey, boys who reported little or no involvement in delinquency at the prior wave were just as likely to have been stopped by police 6 mo later as boys who had reported higher levels of delinquent behavior at the previous wave. All boys in the present study were equally susceptible to police stops, regardless of their prior engagement in delinquency. Finally, we explored whether the relationship between police-initiated contact and subsequent delinquent behavior varied based on adolescents' age at first contact with police. We found that the observed relationship between police stops and delinquent behavior 6 mo later was stronger for younger adolescents than it was for older adolescents.

Discussion

The results from the present study are consistent with labeling and life course theories and support the mechanism proposed by general strain theory. We found that the frequency of police stops predicted more frequent engagement in delinquent behavior 6, 12, and 18 mo later, whereas delinquent behavior did not predict subsequent reports of police stops. We also found that the relationship between police stops and subsequent delinquency was partially mediated by psychological distress. Psychological distress is a salient feature of general strain theory whose predictive influence on subsequent delinquency has not been measured directly in the context of police encounters. Our findings address a critical gap in general strain theory and suggest that this psychological mechanism merits greater empirical attention.

We did not find support for our third hypothesis. Contrary to the predictions of specific deterrence theory, delinquent behavior did not predict subsequent police contact. This finding provides further evidence that police stops can be counterproductive from the standpoint of specific deterrence theory. We found that adolescents' self-reported engagement in delinquent behavior was unrelated to police-initiated contact 6 mo later. Boys who reported little or no delinquent behavior at one wave were just as likely to be stopped 6 mo later as were boys who reported any or a great deal of delinquency. Moreover, regardless of whether a

boy had committed any prior delinquent acts, a police stop was associated with more frequent delinquent behavior in the future.

More than 40% of the boys in our sample were stopped by police at least once during the 2-y period of the study. Among boys who were stopped by police, their first stop was more likely to occur during ninth grade (76%) than during tenth grade (24%). Our results suggest that, the younger the boy was at the time of his first police stop, the greater the increase observed in subsequent delinquent behavior 6 mo later. Importantly, previous research finds that the average age at first stop is 12 y (74, 75), suggesting that the magnitude of the relationship between stops and delinquent behavior in the present study of (on average) 15-y-old high school students may be a conservative estimate.

We also found that delinquent behavior was unrelated to the likelihood of being stopped 6 mo later. This finding warrants special concern because, in our sample, prior law-abiding behaviors did not protect boys against future police stops, yet being stopped by police was associated with increased engagement in delinquent behavior. Our findings are consistent with previous research that found nondelinquent black and Latino boys faced the same risk of police surveillance as self-reported delinquent boys (23, 38, 40, 42, 45, 76) and that these experiences were likely to induce criminal behavior (22, 25, 44, 77). Because adolescent girls of all races and adolescent white boys and girls are less likely to report police-initiated contact than boys and nonwhite youth, future research should explore whether the relationships tested in the present study extend to these populations that are less frequently stopped by police. Future studies should also investigate other factors that might predict lawbreaking, like parental monitoring and peer influence (78–80). Even though we attempted to control for these effects in this study by using measures of family status and peer influence, these factors should be investigated independently in the future.

We also urge future researchers to address some of the limitations of the present study. In the present study, boys' self-reports

of police stops and their engagement in delinquent behavior were low relative to previous research (49, 73). This lower rate may have resulted from more advantaged students remaining in the study at higher rates or from social desirability potentially biasing reports of delinquency, a common problem in previous research. One possibility is that our sample is biased toward more advantaged students, because our analysis excluded boys who participated only during the fall term of the ninth grade. These boys who were dropped from the present study reported more police stops and more engagement in delinquent behaviors than the boys who returned or were recruited during later waves. Another possibility is that boys may have underreported their contact with law enforcement and engagement in delinquent behavior given the self-report nature of these measures. For our sample, recall error and social desirability bias may have influenced self-reports of police-initiated contact and engagement in delinquent behavior (81). For example, research examining the prevalence of arrest among adolescent and adult men found divergent patterns between self-report and official administrative records, with a considerable portion of participants over- or underreporting their contact with the juvenile and criminal justice system (81, 82). Future research would benefit from improved approaches that retain vulnerable populations in longitudinal research and compare survey findings to administrative records.

Although proactive policing may be associated with reduced crime within a geographic area (1, 76), our findings suggest that the single most common proactive policing strategy—directing officers to make contact with individual boys and young men in “high-crime” areas—may impose a terrible cost. Our findings suggest that police stops are associated with harmful outcomes for young boys in those neighborhoods, and that they may be even more harmful when they occur earlier in boys' lives. These potentially damaging consequences warrant urgent attention from social scientists and policymakers.

- National Academies of Sciences (2017) *Proactive Policing: Effects on Crime and Communities* (National Academies Press, Washington, DC).
- Fagan J, Braga AA, Brunson RK, Pattavina A (2016) Stops and stares: Street stops, surveillance, and race in the new policing. *Fordham Urban Law J* 43:539–614.
- Fagan J (2017) Recent evidence and controversies in “the new policing.” *J Policy Anal Manage* 36:690–700.
- Bruch SK, Soss J (2018) Schooling as a formative political experience: Authority relations and the education of citizens. *Perspect Polit* 16:36–57.
- Desmond M, Papachristos AV, Kirk DS (2016) Police violence and citizen crime reporting in the Black community. *Am Sociol Rev* 81:857–876.
- Lerman AE, Weaver VM (2014) Staying out of sight? Concentrated policing and local political action. *Ann Am Acad Pol Soc Sci* 651:202–219.
- Stuart F (2016) Becoming “copwise”: Policing, culture, and the collateral consequences of street-level criminalization. *Law Soc Rev* 50:279–313.
- Bell MC (2017) Police reform and the dismantling of legal estrangement. *Yale Law J* 127:101–119.
- Moffitt TE (1983) The learning theory model of punishment. *Crim Justice Behav* 10:131–158.
- Pogarsky G (2009) Deterrence and decision making: Research questions and theoretical refinements. *Handbook on Crime and Deviance*, eds Krohn MD, Lizotte AJ, Hall GP (Springer, New York), pp 241–258.
- Pratt TC, Cullen FT, Blevins KR, Daigle LE, Madensen TD (2006) The empirical status of deterrence theory: A meta-analysis. *Taking Stock: The Status of Criminology Theory*, Advances in Criminological Theory, eds Cullen FT, Wright JP, Blevins KR (Transaction Publishers, Piscataway, NJ), Vol 15, pp 367–395.
- Braga AA, Weisburd D, Turchan B (2018) Focused deterrence strategies and crime control. *Criminal Public Policy* 17:205–250.
- Kennedy DM (2012) *Deterrence and Crime Prevention: Reconsidering the Prospect of Sanction* (Routledge, New York).
- Gravel J, Tita GE (2015) With great methods come great responsibilities. *Criminal Public Policy* 14:559–572.
- MacDonald JM (2002) The effectiveness of community policing in reducing urban violence. *Crime Delinq* 48:592–618.
- Braga AA, Hureau DM, Papachristos AV (2011) An ex post facto evaluation framework for place-based police interventions. *Eval Rev* 35:592–626.
- Famega C, Hinkle JC, Weisburd D (2017) Why getting inside the “black box” is important: Examining treatment implementation and outputs in policing experiments. *Police Q* 20:106–132.
- Braga AA (2017) Hot spots policing: Theoretical perspectives, scientific evidence, and proper implementation. *Preventing Crime and Violence* (Springer, New York), pp 269–279.
- Kleck G, Barnes JC (2014) Do more police lead to more crime deterrence? *Crime Delinq* 60:716–738.
- Matsueda RL, Kreager DA, Huizinga D (2006) Detering delinquents: A rational choice model of theft and violence. *Am Sociol Rev* 71:95–122.
- Brunson RK (2007) “Police don’t like Black people”: African-American young men’s accumulated police experiences. *Criminal Public Policy* 6:71–101.
- Gau JM, Brunson RK (2015) Procedural injustice, lost legitimacy, and self-help: Young males’ adaptations to perceived unfairness in urban policing tactics. *J Contemp Crim Justice* 31:132–150.
- Jones N (2014) “The regular routine”: Proactive policing and adolescent development among young, poor black men. *New Dir Child Adolesc Dev* 2014:33–54.
- Solis C, Portillos EL, Brunson RK (2009) Latino youths’ experiences with and perceptions of involuntary police encounters. *Ann Am Acad Pol Soc Sci* 623:39–51.
- Kirk DS, Papachristos AV (2011) Cultural mechanisms and the persistence of neighborhood violence. *AJS* 116:1190–1233.
- Becker H (1973) *Outsiders* (The Free Press, New York).
- Lemert EM (1972) *Human Deviance, Social Problems, and Social Control* (Prentice Hall, Englewood Cliffs, NJ), 2nd Ed.
- Paternoster R, Iovanni L (1989) The labeling perspective and delinquency: An elaboration of the theory and an assessment of the evidence. *Justice Q* 6:359–394.
- Ward JT, Krohn MD, Gibson CL (2014) The effects of police contact on trajectories of violence: A group-based, propensity score matching analysis. *J Interpers Violence* 29:440–475.
- Wiley SA, Slocum LA, Esbensen FA (2013) The unintended consequences of being stopped or arrested: An exploration of the labeling mechanisms through which police contact leads to subsequent delinquency. *Criminal An Interdiscip J* 51:927–966.
- Slocum LA, Wiley SA, Esbensen FA (2016) The importance of being satisfied: A longitudinal exploration of police contact, procedural injustice, and subsequent delinquency. *Crim Justice Behav* 43:7–26.
- Sampson RJ, Laub JH (2003) Life-course desisters? Trajectories of crime among delinquent boys followed to ages 7 to 70. *Crim Justice Behav* 41:555–592.
- Wiley SA, Esbensen FA (2016) The effect of police contact. *Crime Delinq* 62:283–307.
- Neblett EW, Philip CL, Cogburn CD, Sellers RM (2006) African American adolescents’ discrimination experiences and academic achievement: Racial socialization as a cultural compensatory and protective factor. *J Black Psychol* 32:199–218.

35. Agnew R (1992) Foundation for a general strain theory of crime and delinquency. *Criminology* 30:47–88.
36. Broidy L, Agnew R (1997) Gender and crime: A general strain theory perspective. *J Res Crime Delinq* 34:275–306.
37. Brunson RK, Miller J (2006) Gender, race, and urban policing: The experience of African American youths. *Gen Soc* 20:531–552.
38. Rios VM (2006) The hyper-criminalization of Black and Latino male youth in the era of mass incarceration. *Souls* 8:40–54.
39. Stevens T, Morash M (2015) Racial/ethnic disparities in boys' probability of arrest and court actions in 1980 and 2000: The disproportionate impact of "getting tough" on crime. *Youth Violence Juv Justice* 13:77–95.
40. Miller RJ, Stuart F (2017) Carceral citizenship: Race, rights and responsibility in the age of mass supervision. *Theor Criminol* 21:532–548.
41. Soss J, Langbein L, Metelko AR (2003) Why do White Americans support the death penalty? *J Polit* 65:397–421.
42. Andersen TS (2015) Race, ethnicity, and structural variations in youth risk of arrest: Evidence from a national longitudinal sample. *Crim Justice Behav* 42:900–916.
43. Schram SF, Soss J, Fording RC, Houser L (2009) Deciding to discipline: Race, choice, and punishment at the frontlines of welfare reform. *Am Sociol Rev* 74:398–422.
44. Weaver VM (2014) The only government I know. *Boston Review*. Available at bostonreview.net/us/vesla-m-weaver-citizenship-custodial-state-incarceration. Accessed November 20, 2018.
45. Vera Sanchez CG, Adams EB (2011) Sacrificed on the altar of public safety: The policing of Latino and African American youth. *J Contemp Crim Justice* 27:322–341.
46. Brunson RK, Weitzer R (2009) Police relations with Black and White youths in different urban neighborhoods. *Urban Aff Rev* 44:858–885.
47. Sewell AA, Jefferson KA, Lee H (2016) Living under surveillance: Gender, psychological distress, and stop-question-and-frisk policing in New York City. *Soc Sci Med* 159: 1–13.
48. Sewell AA (2017) The illness associations of police violence: Differential relationships by ethnoracial composition. *Sociol Forum* 32:975–997.
49. Geller A, Fagan J, Tyler T, Link BG (2014) Aggressive policing and the mental health of young urban men. *Am J Public Health* 104:2321–2327.
50. Sullivan ML (1998) Integrating qualitative and quantitative methods in the study of developmental psychopathology in context. *Dev Psychopathol* 10:377–393.
51. Sullivan ML (2002) Exploring layers extended case method as a tool for multilevel analysis of school violence. *Sociol Methods Res* 31:255–285.
52. Moffitt TE (2001) *Sex Differences in Antisocial Behaviour: Conduct Disorder, Delinquency, and Violence in the Dunedin Longitudinal Study* (Cambridge Univ Press, Cambridge, MA).
53. New York Civil Liberties Union (2017) Stop-and-frisk data. Available at <https://www.nyclu.org/content/stop-and-frisk-data>. Accessed November 9, 2018.
54. Pew Research Center (2015) High school dropout rate, by race. Available at www.pewresearch.org/fact-tank/2016/07/28/5-facts-about-latinos-and-education/ft_14-10-01_h-dropout_1-2/. Accessed November 9, 2018.
55. Liska AE, Elliott DS, Huzinga D, Ageton SS (1986) Explaining delinquency and drug use. *Contemp Sociol* 15:570.
56. Huizinga D, Elliott DS (1986) Reassessing the reliability and validity of self-report delinquency measures. *J Quant Criminol* 2:293–327.
57. Borus ME (1983) Pathways to the future, vol. III. The national longitudinal surveys of youth labor market experience in 1981 (Center for Human Resource Research, Ohio State University, Columbus, OH).
58. Evans SZ, Simons LG, Simons RL (2016) Factors that influence trajectories of delinquency throughout adolescence. *J Youth Adoles* 45:156–171.
59. Papachristos AV, Hureau DM, Braga AA (2013) The corner and the crew: The influence of geography and social networks on gang violence. *Am Sociol Rev* 78:417–447.
60. Norton PJ (2007) Depression anxiety and stress scales (DASS-21): Psychometric analysis across four racial groups. *Anxiety Stress Coping* 20:253–265.
61. Watson D, Clark LA, Tellegen A (1988) Development and validation of brief measures of positive and negative affect: The PANAS scales. *J Pers Soc Psychol* 54:1063–1070.
62. Najdowski CJ, Bottoms BL, Goff PA (2015) Stereotype threat and racial differences in citizens' experiences of police encounters. *Law Hum Behav* 39:463–477.
63. Marx DM, Goff PA (2005) Clearing the air: The effect of experimenter race on target's test performance and subjective experience. *Br J Soc Psychol* 44:645–657.
64. Goff PA, Steele CM, Davies PG (2008) The space between us: Stereotype threat and distance in interracial contexts. *J Pers Soc Psychol* 94:91–107.
65. Tyler TR (1990) *Why People Obey the Law* (Yale Univ Press, New Haven, CT).
66. Kerrison EM, Cobbina J, Bender K (2018) "Your pants won't save you": Why Black youth challenge race-based police surveillance and the demands of Black respectability politics. *Race Justice* 8:7–26.
67. George S, Duran N, Norris K (2014) A systematic review of barriers and facilitators to minority research participation among African Americans, Latinos, Asian Americans, and Pacific Islanders. *Am J Public Health* 104:e16–e31.
68. Unger JB, et al. (2004) No news is bad news: Characteristics of adolescents who provide neither parental consent nor refusal for participation in school-based survey research. *Eval Rev* 28:52–63.
69. Muthén LK, Muthén BO (2012–2018) *Mplus User's Guide: Statistical Analysis with Latent Variables* (Muthén & Muthén, Los Angeles).
70. Maxwell SE, Cole DA, Mitchell MA (2011) Bias in cross-sectional analyses of longitudinal mediation: Partial and complete mediation under an autoregressive model. *Multivariate Behav Res* 46:816–841.
71. Kenny DA (1975) Cross-lagged panel correlation: A test for spuriousness. *Psychol Bull* 82:887–903.
72. Hu L, Bentler PM (1999) Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct Equ Modeling* 6:1–55.
73. Warren MT, Wray-Lake L, Rote WM, Shubert J (2016) Thriving while engaging in risk? Examining trajectories of adaptive functioning, delinquency, and substance use in a nationally representative sample of U.S. Adolescents. *Dev Psychol* 52:296–310.
74. Liberman AM, Kirk DS, Kim K (2014) Labeling effects of first juvenile arrests: Secondary deviance and secondary sanctioning. *Criminol An Interdiscip J* 52:345–370.
75. Geller A (2017) Policing America's children: Police contact and consequences among teens in fragile families. *Working Paper WP18-02-FF* (Princeton Univ Press, Princeton, NJ).
76. Slocum LA, Wiley SA (2018) "Experience of the expected?" Race and ethnicity differences in the effects of police contact on youth. *Criminology* 56:402–432.
77. Fine A, et al. (2017) Is the effect of justice system attitudes on recidivism stable after youths' first arrest? Race and legal socialization among first-time youth offenders. *Law Hum Behav* 41:146–158.
78. Thomas KJ (2016) On the relationship between peer isolation and offending specialization. *Crime Delinq* 62:26–53.
79. Fine A, et al. (2016) The role of peer arrests on the development of youths' attitudes towards the justice system. *Law Hum Behav* 40:211–218.
80. Stuart F, Miller RJ (2017) The prisonized old head: Intergenerational socialization and the fusion of ghetto and prison culture. *J Contemp Ethnogr* 46:673–698.
81. Kirk DS (2006) Examining the divergence across self-report and official data sources on inferences about the adolescent life-course of crime. *J Quant Criminol* 22:107–129.
82. Geller A, Jaeger K, Pace GT (2016) Surveys, records, and the study of incarceration in families. *Ann Am Acad Pol Soc Sci* 665:22–43.