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Self-reported experiences and consequences of unfair treatment by police*

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Abstract

This study uses data from the most recent wave of the National Longitudinal Study of Adolescent to Adult Health (wave V of Add Health) to examine the predictors of experiencing unfair treatment by police. It also considers the degree to which unfair police treatment is associated with a range of social-psychological and behavioral outcomes in adulthood, including depressive symptoms, self-efficacy, suicide ideation, and drug use. Finally, this study examines whether any of the relationships between unfair police treatment and adult outcomes differ by race and ethnicity. Most broadly, results suggest that the odds of reporting ever experiencing unfair treatment by police are disproportionately higher among minorities (and more specifically non-Latino Blacks), men, and those from lower socioeconomic backgrounds. Furthermore, such experiences are detrimental to all of the social-psychological and behavioral outcomes in adulthood, even after accounting for the differences in who is most likely to experience unfair police treatment via propensity score methods. Lastly, some of these consequences seem to be more pronounced among non-Latino Whites compared with non-Latino Blacks, which we believe is attributable to the unfortunate reality that unfair police contact continues to be a normative life-course event for Black people in the United States.

KEYWORDS
Add Health, collateral consequences, race and ethnicity, unfair police treatment

1 | INTRODUCTION

Sandra Bland gained national attention in the United States after committing suicide in jail three days after she was arrested following a confrontational traffic stop. Bland's story is one of many that led to criminal justice reform by shedding light on the collateral consequences associated with experiencing unjust treatment in the criminal justice system. Unfortunately, injustices persist, as Kalief Browder, Michael Brown, George Floyd, Eric Garner, Tamir Rice, and Breonna Taylor are only a handful of names that have now become synonymous with unfair police treatment.

Numerous studies have documented the demographic predictors of being stopped, searched, and arrested by law enforcement, such as race and ethnicity (e.g., Avdija, 2014; Gelman et al., 2007; Kochel et al., 2011; Snyder et al., 2020), sex (e.g., Barnes et al., 2015; U.S. Department of Justice, 2019), and age (e.g., Davis et al., 2018). Research also suggests that these characteristics influence self-reported experiences of unfair treatment by police (e.g., Bjornstrom, 2015; McFarland, Taylor, McFarland, & Friedman, 2018; Weitzer & Tuch, 1999, 2002).

The importance of examining perceived experiences of unfair police treatment resonates with Weitzer and Tuch's (2002, p. 436) contention that "[c]itizens' perceptions of police stops may be considered just as important as the objective reality of such stops." That is, regardless of whether police engage in unfair practices, the *perception* that officers are unfair in their treatment can be real in its consequences. Indeed, existing research indicates that self-reported personal experiences of unfair treatment by police increase depression (e.g., English et al., 2017), anxiety (e.g., Geller et al., 2014), post-traumatic stress disorder (PTSD; e.g., Geller et al., 2014), as well as suicide ideation and attempts (e.g., Oh et al., 2017).

Albeit informative, studies examining perceptions and consequences of experiencing unfair police treatment often use small, local samples that are sometimes restricted to one racial or ethnic group, thus, limiting the generalizability of their conclusions. Furthermore, despite racial and ethnic disparities in police contact, perceptions of the police, and experiences of unfair treatment by police, few studies have considered whether the consequences of self-reported unfair police treatment vary by race and ethnicity.

The present study builds on existing research by using the National Longitudinal Study of Adolescent to Adult Health (hereafter, Add Health) to investigate the predictors and consequences of perceived experiences of unfair treatment at the earliest point of criminal justice system contact: being unfairly stopped, searched, or questioned by police. We begin by examining the associations between a range of background characteristics and self-reported unfair treatment by police. Additionally, we examine whether experiencing unfair treatment predicts social-psychological and behavioral outcomes in adulthood, including depressive symptoms, self-efficacy, suicide ideation, and drug use. Finally, we investigate whether the effects of unfair police treatment on social-psychological and behavioral outcomes vary by race and ethnicity.

2 | PERSONAL EXPERIENCES WITH UNFAIR TREATMENT BY POLICE

Research in this area focuses on identifying the characteristics and factors that predict individuals' perceived experiences of unfair treatment by police. Various studies using non-White samples have confirmed that minorities report experiencing unfair treatment (e.g., being unfairly stopped, searched, questioned, threatened, physically assaulted, or profiled) by police (e.g., Brunson & Miller, 2006b; English et al., 2017; Payne et al., 2017; Pryce, 2016). Furthermore, research using samples consisting of White and non-White respondents shows that Blacks and Latinos are more likely to report having experienced unfair treatment by police than Whites (e.g., Bjornstrom, 2015; McFarland, Taylor, McFarland, & Friedman, 2018; Reitzel et al., 2004; Rice et al., 2005; Weitzer & Tuch, 1999, 2002).

Men and younger individuals are also more likely to report unfair treatment (Barboza, 2012; Bjornstrom, 2015; Broman et al., 2000; Gabbidon et al., 2010; Reitzel et al., 2004; Rice et al., 2005; Weitzer & Tuch, 2002). Additionally, some research shows that indicators of socioeconomic disadvantage, including income, neighborhood disadvantage, and crime rates, affect reports of unfair police experiences (e.g., Bjornstrom, 2015; Weitzer & Tuch, 2002). Having a history of criminal victimization as well as previous involuntary personal contact and negative interactions with police are also predictors of reporting experiencing unfair treatment from law enforcement (McFarland, Taylor, McFarland, & Friedman, 2018; Reitzel et al., 2004; Rice et al., 2005; Weitzer & Tuch, 2002).

Although fewer studies have considered how behavioral characteristics influence experiences of unfair treatment by police, McFarland, Taylor, McFarland, and Friedman's (2018) examination of 514 non-Latino White and Black male residents in Davidson County, Tennessee, showed that antisocial behavior predicted perceived unfair treatment. Bivariate statistics revealed that Black men who reported experiencing unfair treatment by police engaged in more frequent alcohol use compared with Black men who had not reported being unfairly treated. Moreover, a higher proportion of White men who reported experiencing unfair treatment by police had a history of drug use compared with White men who had not reported being unfairly treated (McFarland, Taylor, McFarland, & Friedman, 2018).

Although existing research has made important contributions to our understanding of individuals' personal experiences of unfair treatment by police, many researchers used all-Black samples (e.g., Broman et al., 2000; English et al., 2017; Gabbidon et al., 2010; Payne et al., 2017) or all-Latino samples (e.g., Barboza, 2012) and did not include a comparison group of other racial or ethnic groups. The studies that included more diverse samples (e.g., Whites and Blacks or Whites, Blacks, and Latinos) often used small, nonrandom, or localized samples (e.g., Bjornstrom, 2015; English et al., 2017; McFarland, Taylor, & McFarland, 2018; Payne et al., 2017; Pryce, 2016).

One exception is by Weitzer and Tuch (2002), who analyzed data from a national telephone survey of more than 1,800 Black and White respondents in 1999 and found that Whites were more likely to report that they are treated fairly by local and state police. One limitation, however, was that their analyses were cross-sectional. Gabbidon and colleagues (2010) addressed issues of temporal ordering in their analyses of a randomly selected poll of 854 Black adults, although their outcome of unfair police treatment in the last 30 days was limited insofar as it only asked respondents if they were unfairly treated *because* of their race. Moreover, despite including various socioeconomic and contextual controls (e.g., education, income, employment, urban residency, and neighborhood crime), other important factors known to be associated with police contact, such as low self-control (Beaver et al., 2009), mental health (Akins et al., 2016),

and antisocial behavior (Pollock et al., 2012), were not included in either of the aforementioned analyses.

3 | CONSEQUENCES OF UNFAIR TREATMENT BY POLICE

In addition to the predictors, researchers are also interested in the consequences associated with perceived unfair police treatment. The extent to which unfair police treatment leads to negative outcomes is well grounded in Agnew's (1992) general strain theory (GST), which proposes that strains in the form of negative relationships with others result in emotions that may be conducive to nonconventional adaptations, such as crime. Strains can lead to negative emotions such as anger, fear, depression, and lowered self-efficacy. Additionally, in response to said negative emotions, individuals may engage in cognitive, behavioral, and/or emotional adaptations that include conventional or nonconventional aspects. Emotional adaptations involve attempts to alleviate negative emotions that arise from strain; conventional emotional adaptations may include meditation or physical exercise, whereas nonconventional emotional coping may include drug use or suicide.

Agnew (1992) categorized negative relationships into three major types of strain, including those preventing one from achieving positively valued goals, removing positively valued stimuli, or presenting negatively valued stimuli. Indeed, negative interactions with police, such as those involving unfair treatment, may exemplify the presentation of negative stimuli. Moreover, the presentation of noxious stimuli is especially damaging when one cannot legally escape the stimuli, which is particularly relevant to negative interactions with law enforcement (Agnew, 1985, 1992). More recently, however, Agnew (2001) expanded his theory by specifying the types of strains that would be most detrimental. These include strains that are seen as unjust, high in magnitude, associated with low social control, and create incentive to engage in criminal behavior.

Most central to the present study are strains that are seen as unjust and high in magnitude. Agnew classified unjust treatment as a specific form of strain that falls under the failure to achieve positively valued goals. In addition to focusing on the inability to achieve specific outcomes (e.g., financial success), Agnew (1992) argued that a disjunction between just/fair outcomes and actual outcomes can also represent a failure to achieve positively valued goals. More specifically, Agnew (1992, p. 53) noted that "individuals do not necessarily enter interactions with specific outcomes in mind. Rather, they enter interactions expecting that certain distributive justice rules will be followed." Apart from equitable outcomes, individuals also expect that the process by which decisions are made will be just (Agnew, 2001). In the context of police interactions, procedural justice perspectives contend that when people believe that they are treated fairly and given a voice during police encounters, then they are more likely to perceive the police and the interaction as legitimate (Tyler, 1990; see also Slocum & Wiley, 2018). As this relates to GST, when the interaction is perceived as procedurally just, then it will likely not be conceived as a strain. Agnew noted, however, that when relevant justice rules are violated—in this case, when individuals perceive that they were unfairly treated by police—then the event may represent an unjust strain (see also Liu et al., 2020). Among other conditions, Agnew (2001, p. 331) suggested that procedural injustice is likely present when individuals have no voice during the infliction of strain, question the legitimacy of those inflicting said strain, do not trust those inflicting strain, and believe that the decision-making process conflicts with moral values.

Agnew also contended that the most damaging types of strains are those seen as high in magnitude, and these strains are more likely to lead to depression, anger, and nonconventional

adaptations. Perceptions of magnitude are influenced by the amount of strain inflicted, the duration and frequency of a strain, the recency of a strain, and the centrality of strain—or the extent to which a strain endangers one's "core goals, needs, values, activities, and/or identities" (Agnew, 2001, pp. 333–335). Indeed, unfair police treatment that results in physical injury, has occurred on multiple occasions, has just recently occurred, or jeopardizes one's reputation and/or goals might be particularly detrimental.

Additionally, Agnew's notion of subjective strains—or events that are disliked by those who have experienced them—is important for both conceptualizing the magnitude of the strain as well as how individuals respond to a strain. For instance, similar experiences of unfair police treatment may be subjectively viewed by some as highly strenuous and less so for others, thus, leading to different emotional responses (e.g., Agnew, 2001; Berkowitz, 1990; Cohen et al., 1983). Furthermore, even if individuals are similar in terms of their subjective evaluation of a strain, their responses to a strain can differ. Agnew (2001, p. 322) provided the example that some might respond to a strain with anger, whereas others experiencing the same strain might become depressed. Moreover, even if individuals do respond to a strain in a similar manner (i.e., they become depressed), they might vary in terms of the severity as some might experience a high number of depressive symptoms and others only a few. Agnew noted that the variation in subjective evaluations of (as well as the responses to) strains is influenced by a range of characteristics, such as individual goals, personality traits, past experiences, environmental factors, and social support (see also Froggio & Agnew, 2007). Thus, given the variability in how individuals subjectively evaluate strains, as well as the different responses that may stem from similarly evaluated strains, unfair police contact might lead to a range of emotional and behavioral consequences.

In line with Agnew's GST, research on police interaction and mental health suggests that contact with law enforcement is associated with worse self-reported psychological health, such as depressive symptoms and symptoms of PTSD (e.g., Baćak & Nowotny, 2018; Hirschtick et al., 2020; Jackson et al., 2019; Turney, in press; for a review see McLeod et al., 2020). Evidence also indicates that police contact is even more detrimental when the contact is perceived as unjust (McFarland et al., 2019). Indeed, emerging research has documented both physical (McFarland, Taylor, McFarland, & Friedman, 2018; McFarland, Taylor, & McFarland, 2018) and social-psychological (e.g., Broman et al., 2000; DeVylder et al., 2018; English et al., 2017; Geller et al., 2014; Jackson et al., 2019; Turney, in press; Tyler et al., 2015) consequences of experiencing unfair treatment by police.

Broman and colleagues' (2000) analysis of survey data collected from 495 Black adults in Detroit, Michigan, revealed that perceived unfair treatment by police was negatively associated with mastery (e.g., having the ability to solve problems, feel in control of their life/future, and able to accomplish things) and positively associated with psychological distress. Additionally, Oh and colleagues' (2017) analysis of more than 3,000 Black adults in the National Survey of American Life found that ever being unfairly stopped, searched, questioned, physically threatened, or abused by police predicted mood and anxiety disorders, PTSD, and suicide ideation, plans, and attempts.

Some notable studies have suggested that the aforementioned results may also be generalizable to non-Black populations. For instance, using a sample of more than 3,000 White, Black, Latino, and other racial and ethnic adolescents from the Fragile Families and Child Wellbeing Study (FFCWS), Turney (in press) found that ever experiencing intrusive police contact (e.g., the contact involved a search, harsh or racialized language, or the threat or use of force) increased depressive symptoms. Moreover, DeVylder and colleagues (DeVylder, Frey, et al., 2017; DeVylder, Oh, et al., 2017) analyzed self-reported data from the Survey of Police-Public Encounters, which included

1,615 White, Black, Latino, and other racial and ethnic adults residing in four U.S. cities, and found evidence that violence by police increased suicide attempts as well as psychological distress and depression. Albeit informative, Turney (in press) and DeVylder and colleagues (DeVylder, Frey, et al., 2017; DeVylder, Oh, et al., 2017) did not have a measure indicating whether the interaction was perceived as unfair. This is notable because estimates suggest that 30 percent of individuals who experience police threat or use of force report perceiving that the threat or use of force was necessary (Davis et al., 2018). Moreover, even though these studies accounted for various relevant controls, such as lifetime psychiatric diagnosis (DeVylder, Frey, et al., 2017) and involvement in crime (DeVylder, Frey, et al., 2017; DeVylder, Oh, et al., 2017; Turney, in press), other important factors known to be associated with both police contact and social-psychological and behavioral outcomes (e.g., self-reported mental health symptoms, suicide ideation, substance use, and low self-control) were not included.

This raises another important issue with respect to the study of unfair police treatment. It is possible, for instance, that individuals who report experiencing unfair treatment by law enforcement may already be prone to worse outcomes because the background characteristics that predict police contact and perceived unfair treatment also predict social-psychological and behavioral consequences (Oh et al., 2017; Piquero et al., 2004). As a result, any observed relationship between unfair police treatment and social-psychological/behavioral outcomes might be spurious.

A handful of leading studies on the consequences of unfair police treatment have attempted to address the issue of selection. For instance, in their analysis of the effect of ever experiencing unfair treatment by police on telomere length (an indicator of biological aging related to stress), McFarland, Taylor, McFarland, and Friedman (2018) accounted for numerous relevant factors, including parents' education, childhood financial strain, stressful life events, and having a history of anxiety or depression as well as of alcohol and drug use. The authors also used propensity score methods to attenuate concerns surrounding confounding bias. Overall, results suggested that unfair treatment by police was associated with shorter telomere lengths. Although McFarland, Taylor, McFarland, and Friedman's (2018) sample was limited to 514 White and Black men in Davidson County, Tennessee, their subsequent research (McFarland et al., 2019) used data from more than 3,000 White, Black, Latino, and other racial and ethnic respondents from the FFCWS to examine the association between police contact, procedural injustice, and health. Their propensity score analysis indicated that ever experiencing police contact negatively affected self-rated health and procedural injustice strengthened that association. Despite being some of the strongest assessments of the consequences of unfair treatment by police, McFarland and colleagues' (McFarland et al., 2019; McFarland, Taylor, McFarland, & Friedman, 2018) analyses only examined physiological and physical health outcomes.

4 | RACIAL AND ETHNIC VARIATION IN THE CONSEQUENCES OF UNFAIR TREATMENT BY POLICE

Although unfair police contact seems to be detrimental to a range of negative outcomes, these associations might also vary by race and ethnicity. Consider, for instance, the fact that the unequal prospects of criminal justice system contact for minorities are so embedded in U.S. society that minorities have come to expect police contact and unfair treatment at some point in their lives (Graham et al., 2020). As Hirschfield (2008, p. 597) noted, "The normalization and de-legitimation of official labels are entrenched conditions for poor African-American neighborhoods across the United States, wrought by decades of mass arrests and imprisonment." Indeed, research by

Graham and colleagues (2020) showed that Latinos and Blacks are four and five times more likely to worry about experiencing police brutality compared with Whites, respectively. Taken together, the lens through which individuals perceive police contact likely varies depending on one's racial and ethnic identity, and this may also influence the consequences resulting from unfair police treatment (Brunson, 2007; Rengifo & Slocum, 2020).

On the one hand, the consequences of perceived unfair treatment by police may be particularly damaging among people of color given that minorities might interpret unfair treatment by police as racial discrimination that may enact psychological and physiological stress processes associated with perceived and anticipated experiences of racism (Anderson, 2013; Baćak & Nowotny, 2018; McFarland, Taylor, McFarland, & Friedman, 2018). That is, minorities may subjectively assess unfair police treatment as a particularly undeserved violation of justice given long-standing historic patterns of discrimination among police against minority populations. Furthermore, as McFarland, Taylor, McFarland, and Friedman (2018, p. 589) explained, "[T]he high-profile incidents of police beating or killing black men (e.g., Rodney King, Eric Garner, Walter Scott, among many others) may be relived as trauma after experiencing unfair treatment by police." Thus, the trauma associated with previous personal, vicarious, and/or historical collective experiences of racism and unjust police practices (e.g., discrimination) may amplify the effects of self-reported unfair treatment by police among minorities (McFarland et al., 2019; McFarland, Taylor, McFarland, & Friedman, 2018). This resonates with the "prejudice hypothesis," which contends that past individual or vicarious experiences of unfair treatment by police predispose minorities to develop negative attitudes toward police, such as heightened mistrust, which in turn accentuate the negative consequences following police contact (Rosenbaum et al., 2005; Slocum & Wiley, 2018). This also aligns with Agnew's (2001) notion that (sub)cultural beliefs—in this case, broader dissatisfactions with police among minority populations—can intensify the magnitude of a given strain. Moreover, as Agnew (1992) noted, adaptations to strains (i.e., unfair police contact) are also likely constrained by individual- and macro-level variables, such as temperament, problem-solving skills, cultural emphasis on goals, and the availability of resources. Given higher levels of disadvantage among minorities, unfair treatment by police may be particularly conducive to nonconventional adaptations as a result of limited access to broader resources (e.g., mental health care) that likely facilitate conventional adaptations.

Although few studies have empirically examined whether the consequences of unfair treatment by police vary by race and ethnicity, Turney (in press) found evidence that intrusive stops by police increased depressive symptoms among Black and Latino, but not among White, adolescents. Moreover, McFarland, Taylor, McFarland, and Friedman (2018) found that self-reported unfair treatment by police was associated with premature cell aging and that such associations were more pronounced among Black men compared with White men.

On the other hand, because police-initiated contact (Davis et al., 2018; Kochel et al., 2011; U.S. Department of Justice, 2019) and self-reported experiences of unfair treatment by police (e.g., Bjornstrom, 2015; McFarland, Taylor, McFarland, & Friedman, 2018; Reitzel et al., 2004; Rice et al., 2005; Weitzer & Tuch, 2002) are disproportionately more common and expected among minorities, the event may be conceived as normative (Jones, 2014; Slocum & Wiley, 2018). In fact, the anticipation of police discrimination has prompted minority families to armor their children with social skills in an attempt to help children navigate these (seemingly inevitable) experiences (Brunson & Weitzer, 2011). All told, unfair treatment by police may be less consequential for minorities compared with Whites.

Indeed, the "experience of the expected" hypothesis proposes that unfair police contact should be less detrimental for minorities because this is simply fulfilling the preconceived expectations

about how the interaction would unfold (Hagan et al., 2005; Slocum & Wiley, 2018). Hirschfield (2008) also recognized the normalization of police contact for minorities as juvenile arrests carried little stigma and had minimal influence on one's self-concept among a sample of 20 disadvantaged minority youth. The normative nature of police contact among minorities may also provide social support from those with similar adverse experiences and may promote conventional adaptations among minorities as opposed to among Whites. Research by Jackson and colleagues (2020) supported this possibility. Using a nationally representative sample of adolescent Black boys, the authors found that ever experiencing abuse by police was not associated with depressive symptoms.

For Whites, punitive institutional responses (e.g., school suspension or contact with school resource officers or law enforcement) are not as pervasive (Jackson et al., 2020); thus, being treated unfairly by law enforcement may be a particularly unexpected, stressful experience for this group. Moreover, because non-Latino Whites are more likely to view police favorably (Weitzer & Tuch, 2002) and deny that police engage in misconduct (Weitzer & Tuch, 2004), Whites' experiences of unfair police treatment may present a jarring disjuncture between expected and actual outcomes, thus, increasing the prospects of negative emotional and behavioral coping responses among this group (Agnew, 1992, 2001).

Still, it is possible that unfair treatment by police may be regarded as a strain for all racial and ethnic groups and therefore may be equally consequential (Slocum & Wiley, 2018; Tyler et al., 2014). Supporting this, DeVylder and colleagues' (DeVylder, Frey, et al., 2017; DeVylder, Oh, et al., 2017) analysis of data from the Survey of Police-Public Encounters found that experiencing physical and sexual violence by police led to worse mental health outcomes, although the consequences did not vary by race or ethnicity.

5 | PRESENT STUDY

The current study seeks to build on existing research by attempting to address several limitations of past studies on the predictors and consequences of perceived unfair treatment by police. To date, much of the research in this area has used small, nonrandom, or localized samples (Bjornstrom, 2015; Broman et al., 2000; Geller et al., 2014; McFarland, Taylor, & McFarland, 2018; Pryce, 2016) or all-Black samples (Broman et al., 2000; English et al., 2017; Gabbidon et al., 2010; Oh et al., 2017; Payne et al., 2017), thus, limiting the generalizability of the findings. Additionally, some studies have been unable to assess whether experiences of intrusive or violent interactions with law enforcement were perceived as unfair (e.g., DeVylder, Frey, et al., 2017; DeVylder, Oh, et al., 2017; Jackson et al., 2019; Turney, in press). Moreover, the issue of confounding bias remains central to the study of unfair police contact (e.g., McFarland et al., 2019; McFarland, Taylor, McFarland, & Friedman, 2018), especially as it relates to social-psychological and behavioral consequences. Finally, although researchers examining the consequences of self-reported unfair police treatment acknowledge that the associations might vary by race and ethnicity, findings are inconclusive, and some existing studies have been unable to examine said interactions as a result of small sample sizes (e.g., Hirschtick et al., 2020).

Using a nationally representative U.S. sample of Whites, Blacks, Latinos, and other racial groups, the present study conducts a comprehensive examination of how sociodemographic and behavioral characteristics predict self-reported experiences of unfair treatment by police. Furthermore, we use a measure of unfair treatment by police that is not restricted to a specific reason for the unfair treatment, thereby offering a wider examination of these experiences. We also take

advantage of the longitudinal nature of the Add Health data and conduct a range of sensitivity analyses to address issues of temporal ordering directly with respect to predictors of unfair police contact.

As for the consequences of perceived unfair police treatment, we expand on existing research by examining the association between self-reported unfair treatment by police and depressive symptoms, self-efficacy, suicide ideation, and drug use. Additionally, we assess the role of confounding bias in these associations via a range of propensity score matching methods. In doing so, we account for preexisting differences in several background characteristics between those who reported experiencing unfair police treatment and those who did not (e.g., sociodemographic characteristics, low self-control, delinquency, delinquent peers, substance use, and adverse childhood experiences) that may explain the relationships between unfair treatment and social-psychological and behavioral outcomes. Although we cannot account for all selection-related issues, and thus caution against interpreting the findings as causal, we conduct a range of supplemental analyses to test the robustness of our results. Finally, we investigate whether the associations between unfair police treatment and the aforementioned outcomes vary by race and ethnicity.

6 | DATA

We use data from Add Health, which used an in-school sampling frame to survey a nationally representative group of more than 90,000 students in the 7th–12th grades during the 1994–1995 school year. All students from the participating schools' rosters were eligible for selection into the in-home interview sample. The first wave of in-home interviews (wave I) consisted of a core of 12,105 adolescents plus additional oversampled groups, resulting in 20,745 participants. A parent/guardian of each adolescent respondent also completed a questionnaire for wave I.

Add Health has conducted in-home interviews with the adolescent participants four times since wave I. The initial follow-up (wave II) was conducted in 1996 and included nearly 15,000 participants from wave I. The third round of interviews (wave III) was conducted in 2001–2002 (when the sample was primarily between the ages of 18 and 26 years) and included more than 15,000 respondents who participated in the wave I in-home interview. Wave IV interviews were conducted in 2007–2008 (when the sample was primarily between the ages of 24 and 32 years) and included nearly 16,000 respondents from wave I. The most recent interviews were conducted in 2016–2018 (when the sample was primarily between the ages of 34 and 43 years) and included more than 12,000 respondents (approximately 60 percent) of the eligible sample from the wave I interviews.

We use parent, contextual, and in-home interview data from 11,785 respondents present at waves I and V. Respondents missing on the measure of self-reported unfair treatment by police or who did not have valid sampling weights are excluded. Missing data on the majority of covariates are minimal (<1 percent). Exceptions are our measures of welfare receipt (15 percent), low self-control (16 percent), and parental incarceration (21 percent). To address missing data, we use multiple imputation and combine the results from 20 imputations following Rubin's (1987) rules to account for between- and within-imputation variation.[1]

[1] We also examined all of our models using listwise deletion, and the results were similar to those presented here.

7 | MEASURES

7.1 | Unfair police treatment (wave V)

We operationalize unfair police treatment using responses from the following question: "Have you ever been unfairly stopped, searched, or questioned by the police" (response options included "no" and "yes"). *Unfair police treatment* is therefore a dichotomous variable wherein 1 indicates having experienced perceived unfair treatment by police and 0 indicates never having experienced unfair treatment. Indeed, one limitation of this measure is our inability to identify exactly when respondents experienced unfair police treatment, thus, raising temporal ordering concerns. In light of this limitation, we conduct supplemental analyses (discussed in greater detail below) in part to mitigate this concern and ensure robustness in the overall pattern of results.

7.2 | Social-psychological and behavioral measures in adulthood (wave V)

Depressive symptoms during adulthood is based on indicators from the Center for Epidemiological Studies Depression Scale (Radloff, 1977). Respondents reported how often during the week preceding the interview [ranging from never or rarely (0) to most or all of the time (3)] they 1) could not shake off the blues, 2) felt depressed, 3) felt happy (reverse coded), 4) felt sad, and 5) felt life was not worth living. We sum these five items to create a continuous measure of depressive symptoms that ranges from 0 to 15 (Cronbach's $\alpha = .834$).

To create a continuous measure of *self-efficacy*, respondents reported how often during the 30 days preceding the interview [ranging from never (0) to very often (4)] they felt 1) unable to control important things (reverse coded), 2) confident to handle personal problems, 3) things were going their way, and 4) difficulties were piling up so high that they could not be overcome (reverse coded). The responses to these four questions are summed to create the final measure that ranges from 0 to 16 (Cronbach's $\alpha = .782$).

Suicide ideation during adulthood is based on respondents' reports of whether they seriously thought about committing suicide in the previous year (1 = seriously thought about suicide; 0 = did not).

Drug use in adulthood is based on respondents' report of whether they used cocaine, meth, heroin, or other types of illegal drugs (excluding marijuana) such as LSD, PCP, ecstasy, mushrooms, or inhalants in the 30 days preceding wave V (1 = drug use; 0 = no drug use).

7.3 | Controls (wave I unless noted otherwise)

7.3.1 | Demographics

Respondents' self-identified race and ethnicity are based on questions that asked respondents their race and if they were of Hispanic or Latino origin (response options for the racial categories included White, Black or African American, American Indian or Native American, Asian or Pacific Islander, or Other racial category). Respondents who self-identified as bi- or multiracial reported which category best described their racial background. In the current study, Latino

encompasses respondents of all races (single race, biracial, or multiracial) who identified as ethnically Hispanic or Latino. The racial categories are based on the single racial category that respondents identified as or reported best described them (i.e., for bi- and multiracial respondents) and only includes respondents who did not identify ethnically as Hispanic or Latino. We constructed four mutually exclusive categories to indicate non-Latino *White* (reference category), non-Latino *Black, Latino*, and non-Latino *Other* racial identities (i.e., Asian, Native American, or Other). A dichotomous variable is also included to denote whether respondents were *foreign born* (1 = foreign born; 0 = native born). Sex is a dichotomous variable (1 = *male*; 0 = female). *Age* in years is included as a continuous variable.

7.3.2 | Socioeconomic/contextual characteristics

To account for adolescents' family structure, we created a binary indicator for whether respondents *lived with both biological parents* (1 = biological parents; 0 = other family structure). *Family socioeconomic status (SES)* is created following Ford and colleagues' (1999) operationalization, which is based on a combination of parents' educational attainment and occupational status and ranges from 1 to 10, where higher values represent higher family SES. We measure parents' welfare receipt with information from the parent questionnaire that indicates whether respondents' parents/guardians (or any household member) received public assistance, welfare, or food stamps in the month preceding the interview (1 = *parents received welfare*; 0 = otherwise). Moreover, we account for whether respondents resided in an *urban* area (1 = urban; 0 = otherwise).

Neighborhood disadvantage is based on information from Add Health's community contextual data, which matched respondents' home locations to corresponding census tract data reported by the Census Bureau's American Community Survey. This variable is the average of the following percentages: 1) families below the poverty level, 2) persons 16 years and older unemployed, 3) occupied housing units with a female householder with children younger than 18 years, and 4) households receiving public assistance income (Cronbach's $\alpha = .931$; Gaston, 2016; Sampson et al., 1997). We also control for the *county-level crime rate* with the information from the Uniform Crime Report that is included in Add Health's contextual data.

7.3.3 | Behavioral and psychological characteristics

Similar to others using Add Health (e.g., Demuth & Brown, 2004), *delinquency* is a count (ranging from 0 to 10) of respondents' involvement in the following ten behaviors in the year before wave I: 1) damaged property, 2) stole something worth more than $50, 3) went into a house/building to steal something, 4) used/threatened to use a weapon, 5) sold drugs, 6) stole something worth less than $50, 7) took part in a physical fight with friends, 8) hurt someone badly enough that they needed medical care, 9) pulled a knife or gun on someone, and 10) shot or stabbed someone. We also include a dichotomous control for *drug use* during adolescence, which indicates whether respondents reported ever using marijuana, cocaine, inhalants, or any other illegal drug (1 = drug use; 0 = no drug use). *Alcohol use* is based on three questions tapping the frequency of alcohol use during the past 12 months [response options ranged from never (0) to every day or almost every day (6)], including how many days respondents drank alcohol, drank five or more drinks in a row, and got drunk on alcohol. Responses are summed to create the final measure (Cronbach's $\alpha = .912$). We include a dichotomous control for whether respondents were *suspended* or expelled

from school prior to wave I (1 = suspended or expelled; 0 = not). *Delinquent peers* is a count (ranging from 0 to 9) of how many of the respondents' three best friends smoked cigarettes daily, smoked pot monthly, or drank alcohol monthly (Cronbach's $\alpha = .758$).

We include a control for *Add Health Picture Vocabulary Test Scores* (ranging from 14 to 146), which is based on a 78-item abbreviated version of the Peabody Picture Vocabulary Test-revised. Following Ulmer and colleagues (2010), *religiosity* is a summed scale that captures respondents' subjective religiousness, frequency of religious service attendance, and frequency of prayer, wherein higher scores indicate higher religiosity (Cronbach's $\alpha = .865$). Similar to Yildiz (2020), *perceived social support* is operationalized as the average of responses [ranging from 1 (not at all) to 5 (very much)] to the following seven questions that asked respondents how much they feel: 1) adults care about them, 2) teachers care about them, 3) their parents care about them, 4) their friends care about them, 5) their family understands them, 6) they have fun with their family, and 7) their family pays attention to them (Cronbach's $\alpha = .790$).

Following Beaver and colleagues (2009), *low self-control* is a sum of 23 items that assess respondents' impulsivity and decision-making processes (e.g., "you usually go with your 'gut feeling' without thinking too much about the consequences of each alternative," "when making decisions, you generally use a systematic method for judging and comparing alternatives;" Cronbach's $\alpha = .761$). We also include a measure for *same-sex attraction*, which indicates whether respondents ever had a romantic attraction to someone of the same sex (1 = same-sex attraction; 0 = otherwise). *Depressive symptoms* (Cronbach's $\alpha = .778$) and *suicide ideation* during childhood are operationalized identically to our depressive symptoms and suicide ideation measures in adulthood, respectively.

7.3.4 | Adverse childhood experiences

Violent victimization is a count (ranging from 0 to 4) of how many of the following victimizations respondents' experienced during the year preceding the wave I interview: someone 1) pulled a knife or gun on them, 2) shot them, 3) cut or stabbed them, or 4) jumped them. Following previous studies using Add Health (e.g., Gaston, 2016), we measure respondents' experiences of childhood abuse with retrospective questions at wave IV. *Emotional abuse* indicates whether respondents' parents/caregivers ever said things that really hurt their feelings or made them feel not wanted or loved prior to wave I (1 = emotional abuse; 0 = no emotional abuse). *Physical abuse* reflects whether respondents' parents/caregivers ever hit, kicked, or threw respondents down to the floor, into a wall, or down stairs before wave I (1 = physical abuse; 0 = no physical abuse). *Sexual abuse* indicates whether respondents' parents/caregivers ever touched them in a sexual way, forced them to touch him or her in a sexual way, or forced them to have sexual relations prior to wave I (1 = sexual abuse; 0 = no sexual abuse).

Using retrospective questions from wave IV, we include a measure indicating whether respondents experienced the incarceration of a parent (i.e., *parental incarceration*) before wave I (1 = parental incarceration; 0 = no parental incarceration; Burgess-Proctor et al., 2016). *Parental death* indicates whether respondents experienced the death of a biological parent before wave I (1 = parental death; 0 = no parental death; Feigelman et al., 2017). Two dichotomous indicators for whether any of the respondents' friends (1 = *friend attempted suicide*; 0 = otherwise) or family members (1 = *family member attempted suicide*; 0 = otherwise) attempted suicide in the year preceding the interview were also included.

7.3.5 | Arrest history

We use retrospective questions from wave V to create a measure indicating whether respondents ever experienced an arrest before wave V (1 = *ever arrested*; 0 = not).

8 | ANALYTIC STRATEGY

In the analysis that follows, we begin by examining the bivariate associations between self-reported unfair police treatment and all background measures. We then turn to a multivariable logistic regression analysis predicting perceived unfair treatment by police as a means to investigate these relationships net of other background characteristics. Next, we examine the extent to which unfair police treatment predicts depressive symptoms, self-efficacy, suicide ideation, and drug use in adulthood. In this portion of the analysis, we incorporate propensity score methods to examine these relationships while attenuating concerns surrounding confounding bias. Finally, our analysis concludes by considering the degree to which the relationships between self-reported unfair police treatment and social-psychological and behavioral consequences are moderated by race and ethnicity.

9 | RESULTS

9.1 | Bivariate relationships

Table 1 shows the means and percentages of all background controls separately by whether one reported experiencing unfair police treatment. In total, 20.585 percent (2,426/11,785) of respondents ever experienced unfair treatment by police.[2] In terms of absolute percentages, the majority (49.929 percent) of respondents who experienced unfair treatment by police are non-Latino White. In terms of relative risk, however, a disproportionate percentage of those who experienced unfair treatment are non-Latino Black. That is, despite comprising only 15.475 percent of the overall sample, 30.054 percent of respondents who reported unfair police treatment are non-Latino Black. There are also meaningful socioeconomic differences between those with and without a history of perceived unfair police treatment. Respondents who reported experiencing unfair police treatment grew up with families of lower SES, were more likely to have parents who received welfare, and lived in more disadvantaged neighborhoods during adolescence.

Turning to the behavioral measures, those with a history of perceived unfair treatment by police reported more delinquency and substance use compared with those with no experiences of unfair police treatment. Furthermore, 60.037 percent of those who reported unfair police treatment had been arrested at some point in their lives compared with 26.311 percent of those with no experience of unfair treatment. Respondents who reported unfair police treatment were also more likely to have a history of adverse childhood experiences, such as violent victimization, emotional abuse, physical abuse, parental incarceration, and parental death. Finally, with respect to

[2] Descriptive statistics by race, ethnicity, and sex reveal that 21.804 percent of White men, 9.484 percent of White women, 62.855 percent of Black men, 19.860 percent of Black women, 36.459 percent of Latino men, 14.735 percent of Latina women, 31.711 percent of other racial minority men, and 9.305 percent of other racial minority women experienced unfair treatment by police.

TABLE 1 Weighted descriptive statistics

Variables	Experienced Unfair Police Treatment	Did Not Experience Unfair Police Treatment	Total Sample
Social-Psychological and Behavioral Measures (wave V)			
Depressive symptoms	3.135***	2.251	2.437
Self-efficacy	10.170***	11.156	10.948
Suicide ideation	11.854%***	5.484%	6.829%
Drug use	7.209%***	3.014%	3.899%
Demographics (wave I)			
White	49.929%***	71.765%	67.156%
Black	30.054%***	11.574%	15.475%
Latino	14.634%**	11.316%	12.016%
Other	5.383%	5.345%	5.353%
Foreign-born	6.074%	5.927%	5.959%
Male	72.416%***	44.477%	50.375%
Age	15.524	15.461	15.474
Socioeconomic/Contextual Characteristics (wave I)			
Lived with both biological parents	46.707%***	59.969%	57.170%
Family SES	5.939*	6.169	6.120
Parents received welfare	12.182%***	8.461%	9.247%
Urban	59.773%***	50.062%	52.112%
Neighborhood disadvantage	10.394%***	8.233%	8.689%
County-level crime rate	60.901***	54.346	55.730
Behavioral and Psychological Characteristics (wave I)			
Delinquency	1.498***	.870	1.002
Drug use	40.038%***	27.571%	30.202%
Alcohol use	2.813***	2.277	2.390
Suspended	44.596%***	20.853%	25.865%
Delinquent peers	2.927***	2.409	2.518
Add Health picture vocabulary test scores	100.421***	102.507	102.067
Religiosity	5.573***	5.975	5.890
Perceived social support	3.922***	4.055	4.027
Low self-control	48.958***	47.235	47.599
Same-sex attraction	7.955%**	5.357%	5.906%
Depressive symptoms	2.660***	2.365	2.427
Suicide ideation	15.816%*	13.121%	13.690%

(Continues)

TABLE 1 (Continued)

Variables	Experienced Unfair Police Treatment	Did Not Experience Unfair Police Treatment	Total Sample
Adverse Childhood Experiences (wave I)			
Violent victimization	.519***	.220	.283
Emotional abuse	45.286%***	39.099%	40.405%
Physical abuse	22.945%***	13.656%	15.617%
Sexual abuse	5.742%*	4.322%	4.621%
Parental incarceration	18.218%***	11.886%	13.223%
Parental death	7.026%*	5.186%	5.575%
Friend attempted suicide	21.374%*	17.776%	18.536%
Family member attempted suicide	5.265%*	3.825%	4.129%
Arrest History (wave V)			
Ever arrested	60.037%***	26.311%	33.430%
N of respondents[a]	2,426	9,359	11,785

Notes: All analyses are weighted and account for the Add Health survey design. Independent samples *t* tests and *z* tests were used to test for significant differences in the continuous and binary variables between groups, respectively.
Source: National Longitudinal Study of Adolescent to Adult Health (Add Health), 1995–2018.
Abbreviations: SES = socioeconomic status.
[a]Unweighted *N*.
$^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$ (two-tailed tests).

the social-psychological and behavioral measures in adulthood, those who experienced perceived unfair treatment reported more depressive symptoms and lower self-efficacy and were more likely to report suicide ideation and drug use compared with those with no history of unfair police treatment.

9.2 | Multivariable analysis

9.2.1 | Predicting unfair police treatment

We further investigate how these background measures are related to perceived experiences of unfair police treatment by regressing our dichotomous indicator of self-reported unfair treatment on all of the background controls via logistic regression. Table 2 shows the odds ratios and 95 percent confidence intervals from this logistic regression analysis. Odds ratios can be interpreted as a percent change in the odds of experiencing unfair treatment by police after computing ([odds ratio – 1] × 100). For example, compared with non-Latino Whites, the odds of reporting unfair police treatment are approximately 269 percent ([3.691 – 1] × 100) higher for non-Latino Blacks. Note also that the odds of experiencing unfair treatment by police are approximately 81 percent ([1.807 – 1] × 100) higher among Latinos compared with non-Latino Whites. In supplemental analyses (not shown), we examine between-racial and -ethnic group differences in the odds associated with unfair police treatment and find that the odds are significantly higher for non-Latino Blacks compared with all other groups (results available by request).

TABLE 2 Weighted logistic regression analysis predicting unfair police treatment

Variables	Odds Ratio	95% Confidence Interval
Demographics (wave I)		
White (Reference)	—	—
Black	3.691***	(2.927, 4.654)
Latino	1.807***	(1.389, 2.353)
Other	1.454	(.993, 2.129)
Foreign-born	1.093	(.786, 1.520)
Male	2.859***	(2.401, 3.404)
Age[c]	.969	(.928, 1.012)
Socioeconomic/Contextual Characteristics (wave I)		
Lived with both biological parents	.918	(.796, 1.060)
Family SES[c]	1.014	(.980, 1.050)
Parents received welfare	.812	(.602, 1.095)
Urban	1.152	(.981, 1.352)
Neighborhood disadvantage	1.011*	(1.000, 1.021)
County-level crime rate	1.000	(.997, 1.003)
Behavioral and Psychological Characteristics (wave I)		
Delinquency	.996	(.941, 1.054)
Drug use	1.260*	(1.036, 1.533)
Alcohol use	.978	(.952, 1.004)
Suspended	1.460***	(1.231, 1.732)
Delinquent peers	.998	(.966, 1.031)
Add Health picture vocabulary test scores[c]	1.003	(.997, 1.009)
Religiosity[c]	.984	(.961, 1.008)
Perceived social support[c]	.925	(.798, 1.072)
Low self-control[c]	1.005	(.993, 1.018)
Same-sex attraction	1.037	(.781, 1.378)
Depressive symptoms	1.013	(.979, 1.049)
Suicide ideation	1.073	(.849, 1.356)
Adverse Childhood Experiences (wave I)		
Violent victimization	1.140	(.995, 1.307)
Emotional abuse	1.117	(.921, 1.355)
Physical abuse	1.344*	(1.049, 1.722)
Sexual abuse	1.139	(.796, 1.630)
Parental incarceration	.969	(.753, 1.248)
Parental death	1.023	(.722, 1.450)
Friend attempted suicide	1.407***	(1.156, 1.714)
Family member attempted suicide	1.163	(.828, 1.632)

(Continues)

TABLE 2 (Continued)

Variables	Odds Ratio	95% Confidence Interval
Arrest History (wave V)		
Ever arrested	2.771***	(2.381, 3.226)
Constant	.038***	(.028, .051)
Pseudo R^2	.256	

Notes: All analyses are weighted and account for the Add Health survey design. Sample size (unweighted *N* of respondents): 11,785.
Source: National Longitudinal Study of Adolescent to Adult Health (Add Health), 1995–2018.
Abbreviations: SES = socioeconomic status.
[c]Centered at its mean.
$^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$ (two-tailed tests).

Men also have higher odds of reporting perceived experiences of unfair treatment by police. With regard to the socioeconomic and contextual measures, increases in neighborhood disadvantage are associated with increased odds of reporting unfair treatment. Finally, drug use, school suspension, experiencing physical abuse, having a friend who attempted suicide, and having been arrested all positively predict perceived experiences of unfair police treatment.

9.2.2 | Social-psychological and behavioral consequences associated with unfair police treatment

We now turn to investigate whether unfair police treatment affects a range of social-psychological and behavioral measures in adulthood. Indeed, the aforementioned results suggest that several background measures predict self-reported unfair police treatment. Yet, these same characteristics might also predict depressive symptoms, self-efficacy, suicide ideation, and drug use in adulthood. To account for these potentially spurious associations, we incorporate propensity score methods (Guo & Fraser, 2015). Our goal is to statistically balance the previously observed differences in background characteristics between those with and without a history of self-reported experiences of unfair treatment by police. This is accomplished by retaining the predicted probabilities (i.e., propensity scores) estimated in the logistic regression analysis in table 2 and matching respondents with a history of perceived unfair police treatment (i.e., the treatment group) with respondents who have no history of unfair police treatment (i.e., the control group) but who have a similar propensity for such an event. The propensity scores can range from 0 to 1, where higher values represent a greater likelihood that a respondent perceives that they have experienced unfair treatment by police.

Before matching, we restrict our sample to respondents who fall within the region of common support. This restriction excludes 48 controlled respondents whose propensity score is lower than the lowest propensity score among treated respondents. From there, we employ Gaussian kernel matching, which matches all controlled respondents to each treated respondent. Treated respondents receive a weight equivalent to one, whereas controlled respondents are assigned weights based on proximity to the treated respondents. Controlled respondents with propensity scores that are closest to the treated respondents receive greater weight and more distant matches receive less weight. These weights, in conjunction with the Add Health sample weights (see DuGoff et al.,

2014), are then used in the estimation of the associations between unfair police treatment and our outcomes of interest. Although several different matching algorithms are available (of which some are used as tests of robustness later on), kernel matching is particularly advantageous because we can attenuate observable differences in background characteristics while making use of all respondents in our data. The matching procedure is executed using the *psmatch2* procedure in Stata 15 (Leuven & Sianesi, 2003).[3]

We first examine the standardized differences in the means and percentages between treated and controlled respondents in the matched sample to ensure that the differences in background characteristics are mitigated (see table 3). A conventional threshold for ensuring that balance is achieved between groups in a matched sample is a standardized difference of |0.10| (Austin, 2009). A standardized difference above |0.10| suggests an imbalance. Indeed, as shown in table 3, the means and percentages of all background controls are similar between those with and without a history of unfair treatment by police. Moreover, the matching algorithm results in a standardized bias reduction for most covariates. Two covariates that are balanced prior to matching—that is, being in the other racial group and foreign-born—become slightly less balanced following matching; however, the standardized differences for these covariates remain well below the |0.10| threshold in the matched sample. In fact, all of the standardized differences between the groups fall below |0.10| in the matched sample, suggesting that the matching algorithm resulted in sufficient balance.

Now that balance is achieved in the matched sample, we examine the extent to which perceived unfair police treatment predicts a range of social-psychological and behavioral outcomes in adulthood. Table 4 shows the results from several different regression models, where depressive symptoms, self-efficacy, suicide ideation, and drug use are separately regressed on self-reported unfair treatment by police. We use ordinary least-squares (OLS) regression for the depressive symptoms and self-efficacy models and logistic regression for the suicide ideation and drug use outcomes. To assess the degree to which the associations are influenced by potential confounding bias, we examine these regression models in both the unmatched and the matched sample. In the unmatched sample, unfair treatment by police is associated with a .884 increase in depressive symptoms and a .987 decrease in self-efficacy ($p < .001$). Perceived unfair police treatment is also associated with a 132 percent and 150 percent increase in the odds of suicide ideation and drug use, respectively ($p < .001$).

Perhaps most notable is the consistency in the pattern of results in the matched sample. Although the estimates are slightly attenuated in size in the matched sample (compared with the unmatched sample), the detrimental consequences associated with perceived unfair police treatment on symptoms of depression, self-efficacy, suicide ideation, and drug use remain significant even after accounting for differences in background characteristics between groups. In the matched sample, unfair police treatment is associated with a .697 increase in depressive symptoms and with a .865 decrease in self-efficacy ($p < .001$). As for suicide ideation and drug use, unfair police treatment increases the odds of each by approximately 109 percent ($p < .001$) and 70 percent ($p < .01$), respectively.

[3] The default bandwidth of .06 is used for these analyses. Alternative kernel functions (e.g., Epanechnikov and uniform) as well as bandwidths (e.g., .03, .01, and .001) were used in supplemental analyses (not shown), and the results were consistent with those presented here.

TABLE 3 Weighted descriptive statistics and standardized differences of matched sample

Variables	Experienced Unfair Police Treatment	Did Not Experience Unfair Police Treatment	|SD|	% Bias Reduction
Demographics (wave I)				
White	49.929%	52.808%	.058	−87.444%
Black	30.054%	27.060%	.066	−85.812%
Latino	14.634%	14.841%	.006	−94.087%
Other	5.383%	5.291%	.004	141.177%
Foreign-born	6.074%	6.450%	.015	150.501%
Male	72.416%	67.867%	.099	−83.163%
Age	15.524	15.508	.009	−75.215%
Socioeconomic/Contextual Characteristics (wave I)				
Lived with both biological parents	46.707%	46.791%	.002	−99.374%
Family SES	5.939	5.915	.009	−89.375%
Parents received welfare	12.182%	12.664%	.015	−88.077%
Urban	59.773%	57.965%	.037	−81.260%
Neighborhood disadvantage	10.394%	10.042%	.048	−84.884%
County-level crime rate	60.901	59.862	.038	−84.289%
Behavioral and Psychological Characteristics (wave I)				
Delinquency	1.498	1.430	.036	−90.542%
Drug use	40.038%	39.998%	.001	−99.693%
Alcohol use	2.813	2.877	.016	−88.761%
Suspended	44.596%	42.357%	.045	−91.360%
Delinquent peers	2.927	2.982	.019	−89.912%
Add Health picture vocabulary test scores	100.421	100.468	.003	−97.764%
Religiosity	5.573	5.548	.008	−93.828%
Perceived social support	3.922	3.927	.008	−96.554%
Low self-control	48.958	48.810	.017	−91.547%
Same-sex attraction	7.955%	7.367%	.022	−78.826%
Depressive symptoms	2.660	2.710	.019	−83.810%
Suicide ideation	15.816%	16.906%	.029	−61.561%
Adverse Childhood Experiences (wave I)				
Violent victimization	.519	.491	.032	−92.008%
Emotional abuse	45.286%	46.031%	.015	−88.070%
Physical abuse	22.945%	22.275%	.016	−93.375%
Sexual abuse	5.742%	5.667%	.003	−95.046%
Parental incarceration	18.218%	17.669%	.014	−91.952%

(Continues)

TABLE 3 (Continued)

Variables	Experienced Unfair Police Treatment	Did Not Experience Unfair Police Treatment	|SD|	% Bias Reduction
Parental death	7.026%	7.282%	.010	−87.074%
Friend attempted suicide	21.374%	21.664%	.007	−92.203%
Family member attempted suicide	5.265%	5.269%	<.001	−99.784%
Arrest History (wave V)				
Ever arrested	60.037%	56.632%	.069	−90.457%
N of respondents[a]	2,426	9,311		

Notes: All analyses are weighted and account for the Add Health survey design. Sample size (unweighted *N* of respondents): 11,737. Propensity scores estimated via logistic regression analysis presented in table 2. Matched sample generated using Gaussian kernel matching. Standardized differences below |0.10| suggest balance between groups.
Source: National Longitudinal Study of Adolescent to Adult Health (Add Health), 1995–2018.
Abbreviations: SD = standardized difference; SES = socioeconomic status.
[a]Unweighted *N*.

9.2.3 | Robustness checks: Alternative matching and sampling specifications

We conduct several sensitivity analyses to test the robustness of the results (see table 5). First, we use a one-to-one nearest neighbor matching algorithm without replacement (caliper = .03), which successfully matches 2,218 treated respondents with 2,218 controlled respondents whose propensity score deviates by no more than .03 from their match.[4] We also employ one-to-one nearest neighbor matching with replacement, meaning that one controlled respondent could be used more than once to match with a treated respondent. This algorithm successfully matches all treated respondents with a controlled respondent. Next, we implement a three-to-one nearest neighbor matching algorithm, which matches up to three controlled respondents with each treated respondent. Finally, we use radius matching, which matches all controlled respondents whose propensity score falls within .03 of a treated respondent.[5] As shown in table 5, across all matching algorithms, unfair police treatment remains significantly associated with depressive symptoms, self-efficacy, suicide ideation, and drug use.

One concern with propensity score matching is the fact that respondents can only be matched based on information available in the data; therefore, the extent to which any unobserved variables influence the results remains unknown (see Loughran et al., 2015). We thus estimate Rosenbaum (2002) bounds to assess the role of hidden bias within the matched sample generated via the one-to-one nearest neighbor without replacement matching algorithm. For the continuous outcomes (i.e., depression and self-efficacy), we use the *rbounds* command (DiPrete & Gangl,

[4] In supplemental analyses not shown, we used larger calipers (up to .15) as a means to successfully match all treated respondents with a controlled respondent and increase the number of matched pairs generated from this matching algorithm. We also used calipers smaller than .03 (e.g., .01 and .001) to see whether more precise matches had any influence on the results. Regardless of the caliper size, the results were consistent with those presented here.

[5] We also explored a range of calipers with all of the aforementioned matching algorithms, and no meaningful differences emerged in the overall pattern of results.

TABLE 4 Associations between unfair police treatment and social-psychological and behavioral outcomes in adulthood

	Depressive Symptoms[a]		Self-Efficacy[a]		Suicide Ideation[b]		Drug Use[b]	
Variables	**Coefficient**	**95% Confidence Interval**	**Coefficient**	**95% Confidence Interval**	**Odds Ratio**	**95% Confidence Interval**	**Odds Ratio**	**95% Confidence Interval**
Unmatched Sample								
Unfair police treatment	.884***	(.678, 1.090)	−.987***	(−1.200, −.773)	2.318***	(1.880, 2.857)	2.500***	(1.780, 3.513)
Matched Sample								
Unfair police treatment	.697***	(.466, .927)	−.865***	(−1.106, −.624)	2.087***	(1.607, 2.710)	1.703**	(1.197, 2.424)

Notes: All analyses are weighted and account for the Add Health survey design. Sample size (unweighted *N* of respondents): 11,737 (2,426 treated; 9,311 controlled). Propensity scores estimated via logistic regression analysis presented in table 2. Matched sample generated using Gaussian kernel matching. Coefficients and odds ratios for the matched sample are interpreted as the average treatment effect on the treated.

Source: National Longitudinal Study of Adolescent to Adult Health (Add Health), 1995–2018.

[a]Ordinary least-squares regression.

[b]Logistic regression.

$^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$ (two-tailed tests).

TABLE 5 Associations between unfair police treatment and social-psychological and behavioral outcomes in adulthood: Alternative propensity score matching algorithms

	Unfair Police Treatment Estimate	
Matching Algorithm	**Coefficient**	**95% Confidence Interval**
Depressive Symptoms[a]		
1-to-1 nearest neighbor without replacement	.651***	(.388, .915)
1-to-1 nearest neighbor with replacement	.627***	(.274, .979)
3-to-1 nearest neighbor with replacement	.636***	(.350, .922)
Radius matching	.672***	(.435, .909)
Self-Efficacy[a]		
1-to-1 nearest neighbor without replacement	–.838***	(–1.136, –.541)
1-to-1 nearest neighbor with replacement	–.799***	(–1.191, –.407)
3-to-1 nearest neighbor with replacement	–.787***	(–1.094, –.481)
Radius matching	–.836***	(–1.085, –.587)
Matching Algorithm	**Odds ratio**	**95% Confidence Interval**
Suicide Ideation[b]		
1-to-1 nearest neighbor without replacement	2.055***	(1.454, 2.906)
1-to-1 nearest neighbor with replacement	2.107**	(1.297, 3.423)
3-to-1 nearest neighbor with replacement	2.030***	(1.438, 2.866)
Radius matching	2.047***	(1.565, 2.677)
Drug Use[b]		
1-to-1 nearest neighbor without replacement	1.581*	(1.005, 2.487)
1-to-1 nearest neighbor with replacement	1.767*	(1.086, 2.873)
3-to-1 nearest neighbor with replacement	1.693*	(1.114, 2.573)
Radius matching	1.639**	(1.139, 2.358)

Notes: All analyses are weighted and account for the Add Health survey design. Sample sizes (unweighted *N* of respondents): 1-to-1 nearest neighbor without replacement = 4,436 (2,218 treated; 2,218 controlled); 1-to-1 nearest neighbor with replacement = 4,095 (2,426 treated; 1,669 controlled); 3-to-1 nearest neighbor with replacement = 6,070 (2,426 treated; 3,644 controlled); radius matching = 11,737 (2,426 treated; 9,311 controlled). Propensity scores estimated via logistic regression analysis presented in table 2. A caliper of 0.03 was specified during the matching procedures. Coefficients and odds ratios represent the average treatment effect on the treated.

Source: National Longitudinal Study of Adolescent to Adult Health (Add Health), 1995–2018.

[a]Ordinary least-squares regression.

[b]Logistic regression.

$^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$ (two-tailed tests).

2004), and for the binary outcomes (i.e., suicide ideation and drug use), we use the *mhbounds* command in Stata 15 (Becker & Caliendo, 2007). Rosenbaum's gamma statistic (or Γ) indicates the magnitude required by an unobserved variable on the likelihood of experiencing unfair police treatment to render the observed associations nonsignificant. Based on these Γ bounds, an unobserved covariate would need to increase the odds of experiencing unfair police treatment by 30 to 35 percent to negate the significant associations with drug use, self-efficacy, and depression, and by 55 to 60 percent for suicide ideation. Taken together, this suggests that an unobserved covariate would need to have a similar influence on the likelihood of experiencing unfair police treatment as past drug use, physical abuse during adolescence, or being suspended from school (see table 2).

Despite the consistency in the results across all of these sensitivity analyses, one fundamental data limitation is the fact that our measure of unfair police treatment from wave V assesses

whether respondents *ever* experienced unfair police treatment. We are therefore unable to ensure that the background controls from wave I precede unfair police treatment. With this in mind, we conduct one final set of sensitivity analyses using a subset of respondents to address this temporal concern.

At wave III, respondents reported whether they had ever been stopped or detained by police (excluding minor traffic violations). We use this question to restrict our sample to approximately 8,000 respondents who were present at waves I, III, and V and who had never been stopped or detained by police by wave III. Although this additional restriction substantially reduces our analytic sample, it does increase our confidence that any experiences of unfair police treatment occurred after wave III, meaning any covariates measured at or before wave III precede our treatment variable (i.e., unfair police treatment).

With this subset of respondents, we reexamine all of our previous models but with a few additional changes (see appendix A). Although the socioeconomic background controls are still measured at wave I, we use wave III data for the behavioral and psychological characteristics as well as the indicators of adverse experiences as a means to capture a wider timeframe for the development of these individual characteristics and behaviors. Furthermore, as we are more confident that we are assessing unfair police experiences after wave III, we now include measures for adult status characteristics (e.g., familial transitions, employment status, years of education, and income) in our estimation of the propensity scores in hopes to reduce concerns surrounding omitted variable bias.

This restricted analytic sample consists of 7,886 respondents. In this sample, 16.726 percent (1,319/7,886) of respondents reported experiencing unfair police treatment. Furthermore, 25.483 percent of respondents reported experiencing an arrest after wave III. Appendix A presents the descriptive statistics following kernel matching separately for those with and without experiences of unfair police treatment. Indeed, the standardized differences in all background controls are below the |.10| threshold after matching, which suggests sufficient balance between groups. Additionally, appendix B presents the results for the same five matching algorithms used above to examine the associations between unfair police treatment and the social-psychological and behavioral outcomes in adulthood. In short, unfair police treatment remains significantly associated with all four outcomes across all of the matching algorithms, thus, providing additional confidence in the pattern of results presented with the full sample.

9.2.4 | Racial and ethnic differences in the consequences associated with unfair police treatment

Most broadly, results suggest that perceived unfair police treatment is harmful to one's well-being in adulthood. As discussed earlier, however, it is plausible that these associations vary by race and ethnicity. To that end, we reexamine the relationships between self-reported unfair treatment by police and the social-psychological and behavioral outcomes in adulthood with interaction terms between race and ethnicity and unfair treatment included in the models.[6]

Beginning with depressive symptoms and self-efficacy in table 6, the inclusion of the interaction terms in these OLS models means that the main estimates of perceived unfair police treatment are now interpreted as the estimates for non-Latino White respondents, whereas the interaction terms represent the difference in that association for each respective racial and ethnic

[6] These analyses use data from the full, unrestricted sample of 11,785 respondents present at waves I and V.

TABLE 6 Variation in the associations between unfair police treatment and social-psychological and behavioral outcomes by race and ethnicity

	Depressive Symptoms[a]		Self-Efficacy[a]		Suicide Ideation[b]		Drug Use[b]	
Variables	Coefficient	95% Confidence Interval	Coefficient	95% Confidence Interval	Odds Ratio	95% Confidence Interval	Odds Ratio	95% Confidence Interval
Main Terms								
Unfair police treatment	.837***	(.558, 1.116)	–1.028***	(–1.315, –.740)	2.053***	(1.486, 2.837)	1.694**	(1.140, 2.517)
White (Reference)	—	—	—	—	—	—	—	—
Black	.024	(–.283, .332)	–.249	(–.576, .077)	.757	(.470, 1.221)	.465*	(.235, .919)
Latino	–.154	(–.422, .114)	.095	(–.216, .406)	.700	(.420, 1.166)	1.091	(.613, 1.942)
Other	–.156	(–.449, .137)	–.052	(–.403, .299)	1.062	(.578, 1.954)	2.717**	(1.401, 5.270)
Interaction Terms								
Unfair*Black	–.552*	(–1.018, –.086)	.516*	(.036, .996)	.917	(.505, 1.666)	1.425	(.585, 3.470)
Unfair*Latino	–.306	(–.847, .234)	.376	(–.222, .975)	1.348	(.641, 2.835)	.930	(.399, 2.171)
Unfair*Other	–.454	(–1.228, .320)	.562	(–.263, 1.387)	.709	(.235, 2.140)	.444	(.142, 1.388)
Constant	1.367***	(1.106, 1.629)	11.555***	(11.254, 11.881)	.021***	(.014, .033)	.006***	(.004, .011)
R^2/Pseudo R^2	.107		.104		.091		.108	

Notes: All analyses are weighted and account for the Add Health survey design. Sample size (unweighted *N* of respondents): 11,785. All models include all controls from table 2.

Source: National Longitudinal Study of Adolescent to Adult Health (Add Health), 1995–2018.

[a]Ordinary least-squares regression.

[b]Logistic regression.

*$p < .05$; **$p < .01$; ***$p < .001$ (two-tailed tests).

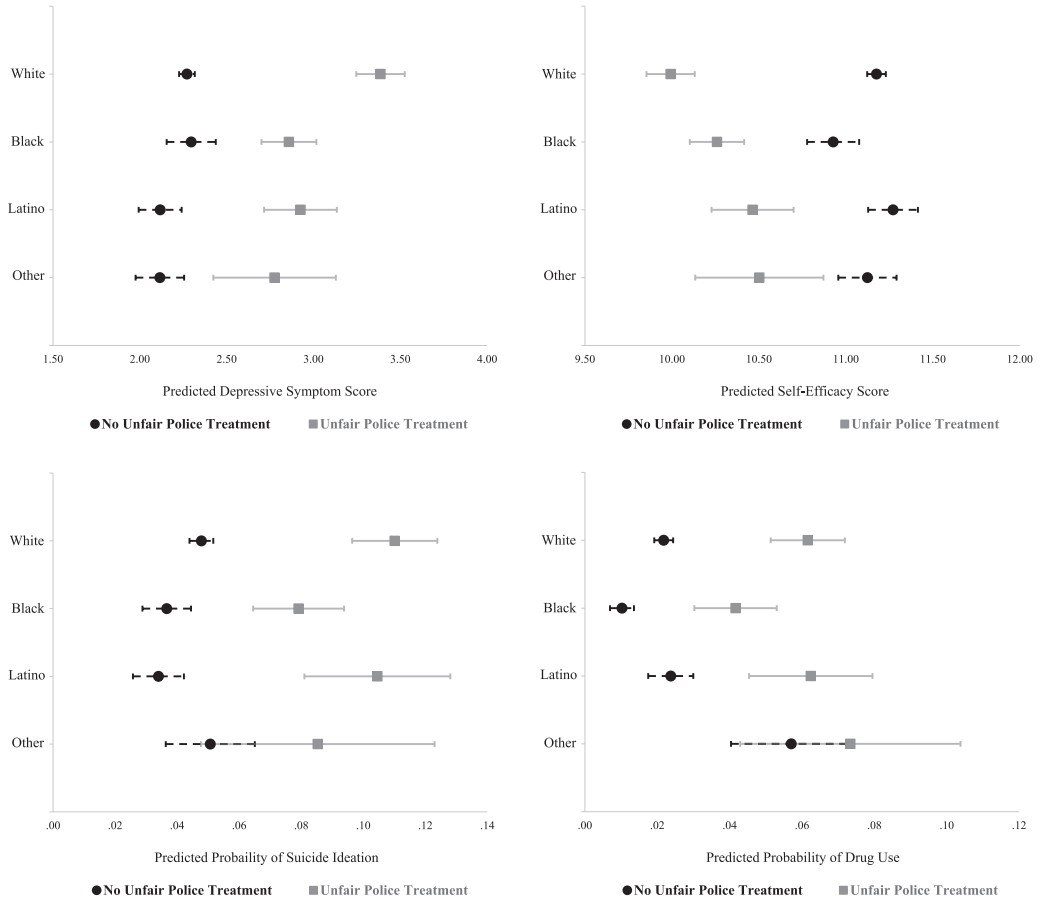

FIGURE 1 Predicted values/probabilities for social-psychological and behavioral outcomes by race and ethnicity and unfair police treatment (unweighted *N* of respondents = 11,785)

Notes: Predicted values/probabilities presented with standard error bars. Predictions based on models from table 6 using subsample means for respondents with and without a history of unfair police treatment

group compared with non-Latino Whites. In the model for depression, perceived unfair police treatment is associated with a .837 increase in depressive symptoms for non-Latino Whites; however, the significant, negative interaction term for non-Latino Blacks suggests that unfair police treatment is associated with a .285 increase in depressive symptoms (i.e., .837 – .552 = .285) for Blacks.

Similarly, in the OLS model for self-efficacy, self-reported unfair police treatment is associated with a 1.028 decrease in self-efficacy for non-Latino Whites, whereas it is associated with a .512 decrease for non-Latino Blacks (–1.028 + .516 = –.512). Once again, the interaction term—that is, the test for the difference in the consequences associated with unfair police treatment between Whites and Blacks—suggests that these associations are more apparent among Whites. To aid interpretation of these associations, the top two panels in figure 1 display the predicted depressive symptoms and self-efficacy scores for all racial and ethnic groups by whether they experienced unfair police treatment. First, note that within each racial and ethnic group, unfair police treatment is associated with higher predicted depressive symptom scores and lower self-efficacy scores. Second, the effect of unfair police contact seems to be more pronounced among non-Latino

Whites, as is evident by the wider gap in predicted scores between Whites with and without experiences of unfair police treatment. Finally, as aforementioned, the effect of unfair police contact for non-Latino Whites significantly differs from that of non-Latino Blacks, although it does not differ from Latinos or Others.

In the logistic regression models for suicide ideation and drug use shown in table 6, the interaction terms do not reach statistical significance; however, the significance of an interaction term in nonlinear models does not necessarily indicate the presence (or absence) of moderation (see Ai & Norton, 2003; Schulz, 2016). Thus, to ensure that we are not missing any meaningful variation, we use Long and Freese's (2014) *SPost13* package in Stata along with Mize's (2019) recommendations for assessing interactions with nonlinear models. After plotting the predicted probabilities of suicide ideation and drug use for all racial and ethnic groups by whether they experienced unfair police treatment (see the bottom two panels of figure 1), we initially examine the first differences—or the difference in the predicted probabilities *within* each racial and ethnic group.

Beginning with suicide ideation, non-Latino Whites who experienced unfair police treatment have a significantly higher probability of suicide ideation (.110) compared with Whites with no experience of unfair treatment (.048; first difference = .062, SE = .014; $p < .001$). Similarly, non-Latino Blacks who experienced unfair police treatment have a higher predicted probability of suicide ideation (.079) compared with Blacks with no experience of unfair police treatment (.037; first difference = .042, SE = .015; $p < .01$). A significant first difference is also observed among Latinos, suggesting again that those with experiences of unfair police treatment have a higher probability of suicide ideation compared with Latinos with no such experience (first difference = .070, SE = .025; $p < .01$).

Yet, whether the consequences of unfair police treatment on suicide ideation vary by race and ethnicity depends on the second differences—or on the comparisons of first differences *between* racial and ethnic groups. For instance, even though the first difference for non-Latino Whites (i.e., .062) is larger than the first difference for non-Latino Blacks (i.e., .042), the second difference between these groups is not statistically significant (second difference = .062 – .042 = .020, SE = .020; $p = .332$). Furthermore, the second difference between non-Latino Whites and Latinos (second difference = –.008, SE = .028; $p = .767$) and between non-Latino Whites and other racial minorities (second difference = .027, SE = .041; $p = .501$) are also not statistically significant, and we find no meaningful differences when comparing other minority groups with one another. With regard to drug use, we again find meaningful within-group (i.e., first) differences for non-Latino Whites (first difference = .040, SE = .010; $p < .001$), non-Latino Blacks (first difference = .031, SE = .012; $p < .01$), and Latinos (first difference = .039, SE = .018; $p < .05$); however, there are no meaningful differences between racial and ethnic groups when assessing second differences. Thus, the consequences of unfair police treatment on suicide ideation and drug use do not seem to vary between groups.

10 | DISCUSSION

This study used data from a nationally representative U.S. sample to examine predictors as well as consequences of self-reported experiences of unfair police treatment. Most broadly, results suggested that minorities (particularly non-Latino Blacks) were disproportionately more likely to report perceived unfair treatment by police. Moreover, being male, growing up in a disadvantaged area, and having a history of substance use, physical abuse, or formal sanctions (i.e., arrest

or school suspension) increased the odds of reporting unfair treatment by police. Additionally, even after accounting for differences in who was most likely to report unfair police treatment, such experiences predicted a range of detrimental outcomes in adulthood, including depressive symptoms, lowered self-efficacy, suicide ideation, and drug use. Finally, results suggested that some of the consequences of unfair police treatment were more pronounced among non-Latino Whites compared with non-Latino Blacks.

McFarland and colleagues (2019, p. 1) recently acknowledged that research on the predictors and consequences of unfair treatment by police "is limited by several factors, including: a reliance on cross-sectional data, single-city samples, sampling strategies prone to selection bias, limitations in controls for selection, and samples with relatively low response rates." Our goal with this study was to address as many of these limitations as possible. Findings from this study contribute to this avenue of research by improving the generalizability of the predictors and consequences associated with unfair police treatment. The consistency in the overall pattern of results within our matched samples also provides additional confidence that the social-psychological and behavioral consequences associated with unfair police treatment are not solely attributed to selection-related concerns.

Regarding the predictors of unfair treatment by police, our findings support existing research that has found that sociodemographic characteristics, such as race, ethnicity, sex, and disadvantage, affect unfair treatment (e.g., Brunson & Miller, 2006b; Reitzel et al., 2004; Rice et al., 2005; Weitzer & Tuch, 2002). Perceived experiences of unfair treatment by police therefore seem to be more common among those already facing aggressive crime control strategies and strained community–police relationships (Brunson & Miller, 2006b; Gabbidon et al., 2010). Moreover, our results indicate that trouble with authorities (i.e., school suspensions and arrest history) increase the likelihood of experiencing perceived unfair treatment by police. Notably, these sociodemographic and behavioral characteristics are known predictors of negative attitudes toward police (Weitzer & Tuch, 2002, 2004). Collectively, then, these characteristics may be associated with anticipating injustice and contribute to perceived experiences of unfair treatment by police through confirmation bias (Woolard et al., 2008). Future research should consider whether views on procedural justice or police legitimacy moderate the association between race, ethnicity, and self-reported unfair treatment by police (e.g., McFarland et al., 2019). Moreover, considering the racialized and gendered nature of policing, future studies should investigate the intersectional nature of race, ethnicity, *and* gender in experiences of unfair police treatment (Brunson & Miller, 2006a; Gabbidon et al., 2010; Rengifo & Pater, 2017).

In our analysis of the consequences associated with unfair treatment by police, our results resonate with Agnew's (1992, 2001) GST and suggest that unfair police treatment can be categorized as an unjust strain that is associated with negative emotions as well as with nonconventional adaptations to strain. The associations between unfair treatment by police and depressive symptoms and lowered self-efficacy are understandable given that unfair police treatment represents a violation of relevant justice norms that may be subjectively perceived as unjust and high in magnitude. Moreover, the positive associations between unfair treatment by police and suicide ideation and drug use are also in accordance with Agnew's theory as strains involving unjust and highly adverse circumstances are most likely to result in nonconventional adaptations.

Given the well-documented racial and ethnic disparities in who is most likely to have police contact (e.g., Barnes et al., 2015; Kochel et al., 2011; Snyder et al., 2020), as well as the rooted distrust and expectation of unfair police treatment among minorities (Hagan et al., 2005; Slocum & Wiley, 2018), we considered whether the consequences associated with unfair treatment by police varied by race and ethnicity. Some researchers have found the consequences to be stronger for

Blacks compared with Whites (McFarland, Taylor, McFarland, & Friedman, 2018), whereas others contend that the effects may be weaker for Blacks as a result of the normative nature of police interaction (Jones, 2014). Moreover, some research suggests that the detrimental consequences linked to unfair police contact do not differ across groups (e.g., DeVylder, Frey, et al., 2017; DeVylder, Oh, et al., 2017). Our results provided partial support for the latter two. In our moderation analysis examining depressive symptoms and self-efficacy in adulthood, we found that even though unfair police treatment was consequential for all racial and ethnic groups, between-group comparisons showed that the effect was weaker for non-Latino Blacks compared with non-Latino Whites. When examining suicide ideation and drug use in adulthood, we observed significant within-group differences for non-Latino Whites, non-Latino Blacks, and Latinos; however, the consequences associated with unfair police treatment did not differ between groups.

Agnew (1992, 2001) proposed that emotional responses to a strain may differ based on one's subjective appraisal of the strain. Thus, the weaker association between unfair police treatment and depressive symptoms and self-efficacy among non-Latino Blacks might be the result of how commonplace police contact has become for Black people in the United States (Jones, 2014). Recent estimates indicate that 1 out of 69 Black adults will have contact with the police at some point in their lives compared with 1 out of 110 White adults (Davis et al., 2018). Police contact is so prevalent among disadvantaged Black communities that it has become an ingrained and expected ritual (Hirschfield, 2008). In fact, Black children are socialized on how to navigate interactions with police at a young age (Brunson & Weitzer, 2011). Thus, for Black people in particular, unfair police treatment might be conceived as 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. At the same time, we recognize that the comparative normality of unfair treatment for Black people erodes police–citizen relationships in communities of color (e.g., increases longstanding mistrust of police) and may be particularly deleterious at the macro-level or even for other types of individual-level outcomes. We therefore encourage future research to explore these associations with alternative levels of analysis and outcomes.

As mentioned, some variation between racial and ethnic groups was observed; however, the effects of unfair treatment on depressive symptoms and self-efficacy were equally detrimental among non-Latino Whites compared with Latinos and non-Latino other racial minorities. Moreover, as for the proposed adaptations to strain, we found no meaningful group differences in the associations between unfair treatment by police and suicide ideation and drug use. These overarching similarities are particularly interesting considering the documented differences in micro- and macro-level experiences with (and perceptions of) law enforcement between racial and ethnic groups (e.g., McFarland, Taylor, & McFarland, 2018; Weitzer & Tuch, 1999, 2002). Nevertheless, the similarities across groups support the notion that the public health implications of policing are far reaching (Geller et al., 2014). Future studies should consider examining other negative emotions and adaptations that may be associated with unfair police treatment (e.g., anger, anxiety, involvement in crime, and poor academic/occupational performance) as a means to uncover other ways in which these experiences disrupt individuals' lives.

Another avenue for future research is to examine the potential mechanisms that may explain why unfair police contact predicts a range of negative outcomes in adulthood. As a result of data limitations, we could not investigate direct and indirect pathways, although perhaps our results shed some light on the broader conceptual framework by which unfair police treatment is associated with social-psychological and behavioral outcomes. As mentioned, unfair treatment by police may be associated with negative emotions through one's subjective appraisal of the magnitude of

the strain; therefore, it is also plausible that the inability to minimize subjective strain acts as a mechanism underlying this association (Agnew, 1992, 2001). Moreover, the negative emotions associated with unfair police treatment (e.g., depression and lower self-efficacy) might lead to drug use as a means to cope with such feelings (e.g., Khantzian, 1985, 1997; Swendsen et al., 2010). These negative emotions stemming from unfair police treatment might also explain why such experiences are associated with suicide-related outcomes, although future research is needed to confirm such pathways.

Additionally, future research should examine what else may moderate the associations between unfair police treatment and negative outcomes in adulthood. For instance, the gender (e.g., U.S. Department of Justice, 2019) and socioeconomic (e.g., Pollock et al., 2012) disparities in criminal justice system contact might mean that, like White people, women or those from higher social class backgrounds may find unfair police contact especially unnerving given their lower likelihood for police interaction. Examining whether opinions of law enforcement, such as perceptions of procedural (in)justice or police legitimacy, moderate the association between perceived unfair treatment and negative outcomes is also an important avenue for future research (e.g., McFarland et al., 2019). Given that individuals' adaptation to strain is constrained by various traits (Agnew, 1992), future research should also consider examining how intelligence, problem-solving skills, temperament, or social support moderates the relationship between unfair treatment by police and conventional versus nonconventional adaptations.

Although we do not interpret these findings as causal, some potential policy implications are worthy of discussion. Results from this analysis indicate that, in the case of police interaction, perception is indeed consequential (Broman et al., 2000; Weitzer & Tuch, 2002). The way in which individuals interpret their interaction with law enforcement can have drastically negative implications for well-being. As a result, it is imperative that officers recognize this concern and do everything possible to increase transparency in their behavior, such as explaining the reasons for their actions while interacting with community members (Wolfe et al., 2015). Moreover, it may be beneficial to reduce the use of proactive stops of Black people and those in minority neighborhoods (Gaston, 2019) as this may increase legitimacy in law enforcement (Brunson & Miller, 2006b; Tyler et al., 2014), improve community–police relations, and perhaps get the United States closer to a fairer and more equitable justice system.

Several study limitations should be noted. First, as mentioned earlier, our indicator of unfair police treatment was based on reports of whether respondents ever experienced such an event. We therefore could not determine the precise timing of the police interaction, thus, raising issues of temporal ordering. It is for these reasons that we chose to use data from the earliest wave of Add Health to predict unfair police treatment, while only using measures from the most recent interview (wave V) that assessed social-psychological and behavioral outcomes referencing the week (depressive symptoms), month (self-efficacy and drug use), and year (suicide ideation) preceding the interview. Although our sensitivity analyses with a subsample of respondents who had not reported any police contact at or before wave III partially addressed this concern, we still cannot be certain when the unfair police interaction occurred. This has unfortunately been an issue in most studies examining correlates and/or consequences of unfair police treatment (e.g., DeVylder, Frey, et al., 2017; DeVylder, Oh, et al., 2017; McFarland et al., 2019; McFarland, Taylor, & McFarland, 2018; McFarland, Taylor, McFarland, & Friedman, 2018; Oh et al., 2017; Reitzel et al., 2004; Rice et al., 2005; Weitzer & Tuch, 2002); thus, future research is clearly needed to establish a causal association.

Our assessment of unfair police treatment was also limited insofar as we could not assess the type or severity of unjust treatment. For instance, we were unable to discern whether the

interaction involved being stopped without a legitimate reason (e.g., Lundman & Kaufman, 2003) or being physically victimized by law enforcement (e.g., DeVylder, Frey, et al., 2017). Additionally, the limited information surrounding the self-reported interaction means that we could not decipher whether the police contact was indeed unfair. Furthermore, respondents might differ in terms of their interpretation of what is considered unfair treatment. Individuals might also differ in their understanding of what it means to be stopped, searched, or questioned by the police. Taken together, these differences might have influenced who answered affirmatively to the unfair police treatment question. Individuals' interpretations of police contact may have also influenced the number of individuals who reported ever having a history of being stopped or detained by the police. Although individuals' subjective assessment of unfair police treatment is an important area of study, it would be useful for future research to examine unfair treatment using officers' official accounts (e.g., Gaston, 2019; see also Pollock et al., 2015). Future studies should also consider implementing qualitative approaches that more directly assess individuals' subjective appraisals of police contact and treatment.

11 | CONCLUSION

With these limitations in mind, results from this study showed disparities in who is most likely to experience unfair police treatment during their lives. It also showed that unfair police treatment leads to a range of social-psychological and behavioral consequences in adulthood, even after accounting for differences in the likelihood of experiencing such treatment, and that some of these associations are weaker for Blacks than for Whites. These findings are important given the continuous concerns surrounding unfair policing practices, disparities in criminal justice system contact, and broader issues of socioeconomic inequality in the United States. It is hoped that these findings evoke change in policing practices as well as increase transparency at all stages of the criminal justice system.

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REFERENCES

Agnew, R. (1985). A revised strain theory of delinquency. *Social Forces*, *64*(1), 151–167. https://doi.org/10.2307/2578977

Agnew, R. (1992). Foundation for a general strain theory of crime and delinquency. *Criminology*, *30*(1), 47–88. https://doi.org/10.1111/j.1745-9125.1992.tb01093.x

Agnew, R. (2001). Building on the foundation of general strain theory: Specifying the types of strain most likely to lead to crime and delinquency. *Journal of Research in Crime and Delinquency*, *38*(4), 319–361. https://doi.org/10.1177/0022427801038004001

Ai, C., & Norton, E. C. (2003). Interaction terms in logit and probit models. *Economic Letters*, *80*(1), 123–129. https://doi.org/10.1016/S0165-1765(03)00032-6

Akins, S., Burkhardt, B. C., & Lanfear, C. (2016). Law enforcement response to "frequent fliers": An examination of high-frequency contacts between police and justice-involved persons with mental illness. *Criminal Justice Policy Review*, *27*(1), 97–114. https://doi.org/10.1177/0887403414559268

Anderson, K. F. (2013). Diagnosing discrimination: Stress from perceived racism and the mental and physical health effects. *Sociological Inquiry*, *83*(1), 55–81. https://doi.org/10.1111/j.1475-682X.2012.00433.x

Austin, P. C. (2009). Using the standardized difference to compare the prevalence of a binary variable between two groups in observational research. *Communications in Statistics-Simulation and Computation*, *28*(6), 1228–1234. https://doi.org/10.1080/03610910902859574

Avdija, A. S. (2014). Police stop-and-frisk practices: An examination of factors that affect officers' decisions to initiate a stop-and-frisk police procedure. *International Journal of Police Science & Management*, *16*(1), 26–35. https://doi.org/10.1350/ijps.2014.16.1.325

Baćak, V., & Nowotny, K. M. (2018). Race and the association between police stops and depression among young adults: A research note. *Race and Justice*, *10*(3), 363–375. https://doi.org/10.1177/2153368718799813

Barboza, G. E. (2012). Group consciousness, identity and perceptions of unfair police treatment among Mexican Americans. *Policing: An International Journal of Police Strategies & Management*, *35*(3), 505–527. https://doi.org/10.1108/13639511211250776

Barnes, J. C., Jorgensen, C., Beaver, K. M., Boutwell, B. B., & Wright, J. P. (2015). Arrest prevalence in a national sample of adults: The role of sex and race/ethnicity. *American Journal of Criminal Justice*, *40*(3), 457–465. https://doi.org/10.1007/s12103-014-9273-3

Beaver, K. M., DeLisi, M., Mears, D. P., & Stewart, E. (2009). Low self-control and contact with the criminal justice system in a nationally representative sample of males. *Justice Quarterly*, *26*(4), 695–715. https://doi.org/10.1080/07418820802593352

Becker, S. O, & Caliendo, M. (2007). Sensitivity analysis for average treatment effects. *The Stata Journal*, *7*(1), 71–83. https://doi.org/10.1177/1536867X0700700104

Berkowitz, L. (1990). On the formation and regulation of anger and aggression: A cognitive-neoassociationistic analysis. *American Psychologist*, *45*(4), 494–503. https://doi.org/10.1037/0003-066X.45.4.494

Bjornstrom, E. E. S. (2015). Race-ethnicity, nativity, neighbourhood context and reports of unfair treatment by police. *Ethnic and Racial Studies*, *38*(12), 2019–2036. https://doi.org/10.1080/01419870.2015.1023821

Broman, C. L., Mavaddat, R., & Hsu, S.-Y. (2000). The experience and consequences of perceived racial discrimination: a study of African Americans. *Journal of Black Psychology*, *26*(2), 165–180. https://doi.org/10.1177/0095798400026002003

Brunson, R. K. (2007). "Police don't like black people": African-American young men's accumulated police experiences. *Criminology & Public Policy*, *6*(1), 71–101. https://doi.org/10.1111/j.1745-9133.2007.00423.x

Brunson, R. K., & Miller, J. (2006a). Gender, race, and urban policing. *Gender & Society*, *20*(4), 531–552. https://doi.org/10.1177/0891243206287727

Brunson, R. K., & Miller, J. (2006b). Young Black men and urban policing in the United States. *The British Journal of Criminology*, *46*(4), 613–640. https://doi.org/10.1093/bjc/azi093

Brunson, R. K., & Weitzer, R. (2011). Negotiating unwelcome police encounters: The intergenerational transmission of conduct norms. *Journal of Contemporary Ethnography*, *40*(4), 425–456. https://doi.org/10.1177/0891241611409038

Burgess-Proctor, A., Huebner, B. M., & Durso, J. M. (2016). Comparing the effects of maternal and paternal incarceration on adult daughters' and sons' criminal justice system involvement: A gendered pathways analysis. *Criminal Justice and Behavior*, *43*(8), 1034–1055. https://doi.org/10.1177/0093854816643122

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, *24*(4), 385–396. https://doi.org/10.2307/2136404.

Davis, E., Whyde, A., & Langton, L. (2018). *Contacts between Police and the Public, 2015*. U.SDepartment of Justice, Office of Justice Programs, Bureau of Justice Statistics. https://www.bjs.gov/content/pub/pdf/cpp15.pdf

Demuth, S., & Brown, S. L. (2004). Family structure, family processes, and adolescent delinquency: The significance of parental absence versus parental gender. *Journal of Research in Crime and Delinquency*, *41*(1), 58–81. https://doi.org/10.1177/0022427803256236

DiPrete, T. A., & Gangl, M. (2004). Assessing bias in the estimation of causal effects: Rosenbaum bounds on matching estimators and instrumental variables estimation with imperfect instruments. *Sociological Methodology*, *34*(1), 271–310. https://doi.org/10.1111/j.0081-1750.2004.00154.x

DeVylder, J. E., Frey, J. J., Cogburn, C. D., Wilcox, H. C., Sharpe, T. L., Oh, H. Y., Nam, B., & Link, B. G. (2017). Elevated prevalence of suicide attempts among victims of police violence in the USA. *Journal of Urban Health*, *94*(5), 629–636. https://doi.org/10.1007/s11524-017-0160-3

DeVylder, J. E., Jun, H. J., Fedina, L., Coleman, D., Anglin, D., Cogburn, C., … Barth, R. P. (2018). Association of exposure to police violence with prevalence of mental health symptoms among urban residents in the United States. *JAMA Network Open*, *1*(7), 1–14. https://doi.org/10.1001/jamanetworkopen.2018.4945

DeVylder, J. E., Oh, H. Y., Nam, B., Sharpe, T. L., Lehmann, M., & Link, B. G. (2017). Prevalence, demographic variation and psychological correlates of exposure to police victimisation in four US cities. *Epidemiology and Psychiatric Sciences*, *26*(5), 466–477. https://doi.org/10.1017/S2045796016000810

DuGoff, E. H., Schuler, M., & Stuart, E. A. (2014). Generalizing observational study results: Applying propensity score methods to complex surveys. *Health Services Research*, *49*(1), 284–303. https://doi.org/10.1111/1475-6773.12090

English, D., Bowleg, L., del Río-González, A. M., Tschann, J. M., Agans, R. P., & Malebranche, D. J. (2017). Measuring Black men's police-based discrimination experiences: Development and validation of the Police and Law Enforcement (PLE) Scale. *Cultural Diversity and Ethnic Minority Psychology*, *23*(2), 185–199. https://doi.org/10.1037/cdp0000137

Feigelman, W., Rosen, Z., Joiner, T., Silva, C., & Mueller, A. S. (2017). Examining longer-term effects of parental death in adolescents and young adults: Evidence from the National Longitudinal Survey of Adolescent to Adult Health. *Death Studies*, *41*(3), 133–143. https://doi.org/10.1080/07481187.2016.1226990

Ford, C. A., Bearman, P. S., & Moody, J. (1999). Foregone health care among adolescents. *The Journal of the American Medical Association*, *282*(23), 2227–2234. https://doi.org/10.1001/jama.282.23.2227

Froggio, G., & Agnew, R. (2007). The relationship between crime and "objective" versus "subjective" strains. *Journal of Criminal Justice*, *35*(1), 81–87. https://doi.org/10.1016/j.jcrimjus.2006.11.017

Gabbidon, S. L., Higgins, G. E., & Potter, H. (2010). Race, gender, and the perception of recently experiencing unfair treatment by the police: Exploratory results from an all-Black sample. *Criminal Justice Review*, *36*(1), 5–21. https://doi.org/10.1177/0734016810379904

Gaston, S. (2016). The long-term effects of parental incarceration: Does parental incarceration in childhood or adolescence predict depressive symptoms in adulthood? *Criminal Justice and Behavior*, *43*(8), 1056–1075. https://doi.org/10.1177/0093854816628905

Gaston, S. (2019). Producing race disparities: A study of drug arrests across place and race. *Criminology*, *57*(3), 424–451. https://doi.org/10.1111/1745-9125.12207

Gelman, A., Fagan, J., & Kiss, A. (2007). An analysis of the New York City police department's "stop-and-frisk" policy in the context of claims of racial bias. *Journal of the American Statistical Association*, *102*(479), 813–823. https://doi.org/10.1198/016214506000001040

Geller, A., Fagan, J., Tyler, T., & Link, B. G. (2014). Aggressive policing and the mental health of young urban men. *American Journal of Public Health*, *104*(12), 2321–2327. https://doi.org/10.2105/AJPH.2014.302046

Graham, A., Haner, M., Sloan, M. M., Cullen, F. T., Kulig, T. C., & Jonson, C. L. (2020). Race and worrying about police brutality: The hidden injuries of minority status in America. *Victims & Offenders*, *15*(5), 549–573. https://doi.org/10.1080/15564886.2020.1767252

Guo, S. & Fraser, M. W. (2015). *Propensity score analysis: Statistical methods and applications* (2nd ed.). Sage.

Hagan, J., Shedd, C., & Payne, M. R. (2005). Race, ethnicity, and youth perceptions of criminal injustice. *American Sociological Review*, *70*(3), 381–407. https://doi.org/10.1177/000312240507000302

Hirschfield, P. J. (2008). The declining significance of delinquent labels in disadvantaged urban communities. *Sociological Forum*, *23*(3), 575–601. https://doi.org/10.1111/j.1573-7861.2008.00077.x

Hirschtick, J. L., Homan, S. M., Rauscher, G., Rubin, L. H., Johnson, T. P., Peterson, C. E., & Persky, V. W. (2020). Persistent and aggressive interactions with the police: potential mental health implications. *Epidemiology and Psychiatric Sciences*, *29*, Article e19. https://doi.org/10.1017/S2045796019000015

Jackson, A. N., Butler-Barnes, S. T., Stafford, J. D., Robinson, H., & Allen, P. C. (2020). "Can I live": Black American adolescent boys' reports of police abuse and the role of religiosity on mental health. *International Journal of Environmental Research and Public Health*, *17*(12), Article 4330. https://doi.org/10.3390/ijerph17124330

Jackson, D. B., Fahmy, C., Vaughn, M. G., & Testa, A. (2019). Police stops among at-risk youth: Repercussions for mental health. *Journal of Adolescent Health*, *65*(5), 627–632. https://doi.org/10.1016/j.jadohealth.2019.05.027

Jones, N. (2014). "The regular routine": Proactive policing and adolescent development among young, poor black men. *New Directions for Child and Adolescent Development*, *2014*(143), 33–54. https://doi.org/10.1002/cad.20053

Khantzian, E. J. (1985). The self-medication hypothesis of addictive disorders: Focus on heroin and cocaine dependence. *American Journal of Psychiatry*, *142*(11), 1259–1264. https://doi.org/10.1176/ajp.142.11.1259

Khantzian, E. J. (1997). The self-medication hypothesis of substance use disorders: A reconsideration and recent applications. *Harvard Review of Psychiatry*, *4*(5), 231–244. https://doi.org/10.3109/10673229709030550

Kochel, T. R., Wilson, D. B., & Mastrofski, S. D. (2011). Effect of suspect race on officers' arrest decisions. *Criminology*, *49*(2), 473–512. https://doi.org/10.1111/j.1745-9125.2011.00230.x

Leuven, E., & Sianesi, B. (2003). *PSMATCH2: Stata module to perform full mahalanobis and propensity score matching, common support graphing, and covariate imbalance testing*. Statistical Software Components and Boston College Department of Economics.

Liu, L., Visher, C. A., & O'Connell, D. J. (2020). The strain from procedural injustice on parolees: Bridging procedural justice theory and general strain theory. *Crime & Delinquency*, *66*(2), 250–276. https://doi.org/10.1177/0011128719839376

Long, J. S., & Freese, J. (2014). *Regression models for categorical dependent variables using Stata*. Stata Press.

Loughran, T. A., Wilson, T., Nagin, D. S., & Piquero, A. R. (2015). Evolutionary regression? Assessing the problem of hidden biases in criminal justice applications using propensity scores. *Journal of Experimental Criminology*, *11*(4), 631–652. https://doi.org/10.1007/s11292-015-9242-y

Lundman, R. J., & Kaufman, R. L. (2003). Driving while black: Effects of race, ethnicity, and gender on citizen self-reports of traffic stops and police actions. *Criminology*, *41*(1), 195–220. https://doi.org/10.1111/j.1745-9125.2003.tb00986.x

McFarland, M. J., Geller, A., & McFarland, C. (2019). Police contact and health among urban adolescents: The role of perceived injustice. *Social Science & Medicine*, *238*, Article 112487. https://doi.org/10.1016/j.socscimed.2019.112487

McFarland, M. J., Taylor, J., & McFarland, C. A. S. (2018). Weighed down by discriminatory policing: Perceived unfair treatment and black-white disparities in waist circumference. *SSM Population Health*, *5*, 210–217. https://doi.org/10.1016/j.ssmph.2018.07.002

McFarland, M. J., Taylor, J., McFarland, C. A. S., & Friedman (2018). Perceived unfair treatment by police, race, and telomere length: A Nashville community-based sample of black and white men. *Journal of Health and Social Behavior*, *59*(4), 585–600. https://doi.org/10.1177/0022146518811144

McLeod, M. N., Heller, D., Manze, M. G., & Echeverria, S. E. (2020). Police interactions and the mental health of Black Americans: A systematic review. *Journal of Racial and Ethnic Health Disparities*, *7*(1), 10–27. https://doi.org/10.1007/s40615-019-00629-1

Mize, T. D. (2019). Best practices for estimating, interpreting, and presenting non-linear interaction effects. *Sociological Science*, *6*, 81–117. https://doi.org/10.15195/v6.a4

Oh, H., DeVylder, J., & Hunt, G. (2017). Effect of police training and accountability on the mental health of African American Adults. *American Journal of Public Health*, *107*(10), 1588–1590. https://doi.org/10.2105/AJPH.2017.304012

Payne, Y. A., Hitchens, B. K., & Chambers, D. L. (2017). "Why I can't stand out in front of my house?": Street-identified Black youth and young adult's negative encounters with police. *Sociological Forum*, *32*(4), 874–895. https://doi.org/10.1111/socf.12380

Piquero, A. R., Gomez-Smith, Z., & Langton, L. (2004). Discerning unfairness where others may not: Low self-control and unfair sanction perceptions. *Criminology*, *42*(3), 699–734. https://doi.org/10.1111/j.1745-9125.2004.tb00534.x

Pollock, W., Menard, S., Elliott, D. S., & Huizinga, D. H. (2015). It's official: Predictors of self-reported vs. officially recorded arrests. *Journal of Criminal Justice*, *43*(1), 69–79. https://doi.org/10.1016/j.jcrimjus.2014.12.004

Pollock, W., Oliver, W., & Menard, S. (2012). Measuring the problem: A national examination of disproportionate police contact in the United States. *Criminal Justice Review*, *37*(2), 153–173. https://doi.org/10.1177/0734016811436335

Pryce, D. K. (2016). Ghanaian immigrants' experiences with and perceptions of US police: A qualitative study. *Criminal Justice Review*, *41*(1), 469–487. https://doi.org/10.1177/0734016816669982

Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, *1*(3), 385–401. https://doi.org/10.1177/014662167700100306

Reitzel, J. D., Rice, S. K., & Piquero, A. R. (2004). Lines and shadows: Perceptions of racial profiling and the Hispanic experience. *Journal of Criminal Justice*, *32*(6), 607–616. https://doi.org/10.1016/j.jcrimjus.2004.08.011

Rengifo, A. F., & Slocum, L. A. (2020). The identity prism: how racial identification frames perceptions of police contact, legitimacy, and effectiveness. *Law & Social Inquiry*, *45*(3), 590–617. https://doi.org/10.1017/lsi.2019.72

Rengifo, A. F., & Pater, M. (2017). Close call: Race and gender in encounters with the police by Black and Latino/a youth in New York City. *Sociological Inquiry*, *87*(2), 337–361. https://doi.org/10.1111/soin.12166

Rice, S. K., Reitzel, J. D., & Piquero, A. R. (2005). Shades of brown: Perceptions of racial profiling and the intra-ethnic differential. *Journal of Ethnicity in Criminal Justice*, *3*(1–2), 47–70. https://doi.org/10.1300/J222v03n01_03

Rosenbaum, D. P., Schuck, A. M., Costello, S. K., Hawkins, D. F., & Ring, M. K. (2005). Attitudes toward the police: the effects of direct and vicarious experiences. *Police Quarterly*, *8*(3), 343–365. https://doi.org/10.1177/1098611104271085

Rosenbaum, P. R. (2002). *Observational studies*. Springer.

Rubin, D. (1987). *Multiple imputation for non-response in surveys*. John Wiley & Sons Inc.

Sampson, R. J., Raudenbush, S. W., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science*, *277*(5328), 918–924. https://doi.org/10.1126/science.277.5328.918

Schulz, S. (2016). 'Don't blow your cool': Provocation, violent coping, and the conditioning effects of self-control. *Journal of Quantitative Criminology*, *32*(4), 561–587. https://doi.org/10.1007/s10940-015-9267-4

Slocum, L. A., & Wiley, S. A. (2018). "Experience of the expected?" Race and ethnicity differences in the effects of police contact on youth. *Criminology*, *56*(2), 402–432. https://doi.org/10.1111/1745-9125.12174

Snyder, H. N., Cooper, A. D., & Mulako-Wangota, J. (2020). *National Estimates: Trend Tables by Race*. Bureau of Justice Statistics. Generated using the Arrest Data Analysis Tool at.

Swendsen, J., Conway, K. P., Degenhardt, L., Glantz, M., Jin, R., Merikangas, K. R., … Kessler, R. C. (2010). Mental disorders as risk factors for substance use, abuse and dependence: results from the 10-year follow-up of the National Comorbidity Survey. *Addiction*, *105*(6), 1117–1128. https://doi.org/10.1111/j.1360-0443.2010.02902.x

Turney, K. (In press). Depressive symptoms among adolescents exposed to personal and vicarious police contact. *Society and Mental Health*. https://doi.org/10.1177/2156869320923095

Tyler, T. R. (1990). *Why people obey the law*. Yale University Press.

Tyler, T. R., Fagan, J., & Geller, A. (2014). Street stops and police legitimacy: Teachable moments in young urban men's legal socialization. *Journal of Empirical Legal Studies*, *11*(4), 751–785. https://doi.org/10.1111/jels.12055

Tyler, T. R., Jackson, J., & Mentovich, A. (2015). The consequences of being an object of suspicion: potential pitfalls of proactive police contact. *Journal of Empirical Legal Studies*, *12*(4), 602–636. https://doi.org/10.1111/jels.12086

Ulmer, J. T., Desmond, S. A., Jang, S. J., & Johnson, B. R. (2010). Teenage religiosity and changes in marijuana use during the transition to adulthood. *Interdisciplinary Journal of Research on Religion*, *6*, Article 3.

United States Department of Justice, Federal Bureau of Investigation. (2019). *Crime in the United States*, *2018*. https://ucr.fbi.gov/crime-in-the-u.s/2018/crime-in-the-u.s.-2018/topic-pages/persons-arrested

Weitzer, R., & Tuch, S. A. (1999). Race, class, and perceptions of discrimination by the police. *Crime & Delinquency*, *45*(4), 494–507. https://doi.org/10.1177/0011128799045004006

Weitzer, R., & Tuch, S. A. (2002). Perceptions of racial profiling: Race, class, and personal experience. *Criminology*, *40*(2), 435–456. https://doi.org/10.1111/j.1745-9125.2002.tb00962.x

Weitzer, R., & Tuch, S. A. (2004). Race and perceptions of police misconduct. *Social Problems*, *51*(3), 305–325. https://doi.org/10.1525/sp.2004.51.3.305

Wolfe, S. E., Nix, J., Kaminski, R., & Rojek, J. (2015). Is the effect of procedural justice on police legitimacy invariant? Testing the generality of procedural justice and competing antecedents of legitimacy. *Journal of Quantitative Criminology*, *32*(2), 253–282. https://doi.org/10.1007/s10940-015-9263-8

Woolard, J. L., Harvell, S., & Graham, S. (2008). Anticipatory injustice among adolescents: Age and racial/ethnic differences in perceived unfairness of the justice system. *Behavioral Sciences & the Law*, *26*(2), 207–226. https://doi.org/10.1002/bsl.805

Yildiz, M. (2020). Stressful life events and adolescent suicidality: An investigation of the mediating mechanisms. *Journal of Adolescence*, *82*, 32–40. https://doi.org/10.1016/j.adolescence.2020.05.006

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APPENDIX A: WEIGHTED DESCRIPTIVE STATISTICS AND STANDARDIZED DIFFERENCES OF MATCHED SAMPLE

Variables	Experienced Unfair Police Treatment	Did Not Experience Unfair Police Treatment	|SD|	% Bias Reduction
Demographics (wave III)				
White	47.868%	51.372%	.070	−85.776%
Black	29.852%	26.727%	.069	−84.253%
Latino	15.230%	15.151%	.002	−98.338%
Other	7.051%	6.750%	.012	−80.961%
Foreign-born	7.484%	7.516%	.001	−98.155%
Male	65.319%	61.842%	.072	−87.130%
Age	21.817	21.785	.018	−34.556%
Socioeconomic/Contextual Characteristics (wave I)				
Lived with both biological parents	47.642%	47.750%	.002	−99.268%
Family SES	5.881	5.888	.003	−96.839%
Parents received welfare	11.257%	11.534%	.009	−90.608%
Urban	56.785%	55.277%	.030	−82.039%
County-level crime rate	59.714	59.013	.027	−87.895%
Behavioral and Psychological Characteristics (wave III)				
Delinquency	.540	.503	.035	−88.097%
Drug use	49.960%	49.149%	.016	−91.683%
Alcohol use	4.388	4.461	.017	−45.259%
Suspended	9.358%	8.530%	.029	−85.373%
Delinquent peers	3.131	3.106	.014	−83.993%
Add Health picture vocabulary test scores[b]	99.564	100.040	.033	−82.641%

Variables	Experienced Unfair Police Treatment	Did Not Experience Unfair Police Treatment	|SD|	% Bias Reduction
Religiosity	4.740	4.747	.003	−94.914%
Perceived social support[b]	3.941	3.948	.011	−95.554%
Low self-control[b]	48.623	48.443	.022	−88.675%
Same-sex attraction	9.737%	10.409%	.022	7.860%
Depressive symptoms	1.338	1.297	.023	−84.083%
Suicide ideation	9.204%	9.896%	.024	−82.405%
Adverse Experiences (wave III)				
Violent victimization	.171	.156	.027	−89.740%
Emotional abuse	52.746%	53.155%	.008	−94.636%
Physical abuse	24.097%	23.301%	.019	−91.987%
Sexual abuse	6.578%	6.365%	.009	−88.935%
Parental incarceration	16.679%	16.716%	.001	−99.300%
Parental death	9.151%	9.577%	.015	290.984%
Friend attempted suicide	7.405%	7.448%	.002	−97.432%
Family member attempted suicide	3.001%	2.979%	.001	−95.941%
Adult Status Characteristics (wave III)				
Married with children	11.214%	11.454%	.008	−73.751%
Married without children	4.262%	4.535%	.013	−91.807%
Cohabiting with children	7.145%	6.649%	.020	−79.889%
Cohabiting without children	7.696%	8.108%	.015	58.872%
Single with children	7.633%	8.189%	.021	−20.967%
Single without children	62.051%	61.066%	.020	236.294%
Neighborhood disadvantage	14.185%	13.752%	.047	−76.533%
Working 10+ hours per week	70.986%	72.111%	.025	−45.114%
Years of education	12.659	12.731	.038	−88.539%
Income (in $1,000s)	32.449	33.555	.029	170.320%
Received welfare	7.198%	7.384%	.007	5.354%
Arrest History (wave V)				
Ever arrested after wave III	52.571%	49.651%	.058	−91.922%
N of respondents[a]	1,319	6,567		

Notes: All analyses are weighted and account for the Add Health survey design. Sample restricted to respondents who were present at waves I, III, and V and who had never been stopped or detained by police by wave III. Sample size (unweighted *N* of respondents): 7,886. Propensity scores estimated via logistic regression analysis using all covariates shown above. Matched sample generated using Gaussian kernel matching. Standardized differences below |0.10| suggest balance between groups.

Source: National Longitudinal Study of Adolescent to Adult Health (Add Health), 1995–2018.

Abbreviations: SD = standardized difference; SES = socioeconomic status.

[a]Unweighted *N*.

[b]Measured at wave I.

APPENDIX B: ASSOCIATIONS BETWEEN UNFAIR POLICE TREATMENT AND SOCIAL-PSYCHOLOGICAL AND BEHAVIORAL OUTCOMES IN ADULTHOOD: ALTERNATIVE PROPENSITY SCORE MATCHING ALGORITHMS

	Unfair Police Treatment Estimate	
Matching Algorithm	**Coefficient**	**95% Confidence Interval**
Depressive Symptoms[a]		
Kernel matching	.498***	(.212, .784)
1-to-1 nearest neighbor without replacement	.497**	(.143, .851)
1-to-1 nearest neighbor with replacement	.505*	(.099, .911)
3-to-1 nearest neighbor with replacement	.468**	(.121, .814)
Radius matching	.483**	(.194, .771)
Self-Efficacy[a]		
Kernel matching	−.621***	(−.919, −.323)
1-to-1 nearest neighbor without replacement	−.639***	(−1.005, −.273)
1-to-1 nearest neighbor with replacement	−.652**	(−1.139, −.164)
3-to-1 nearest neighbor with replacement	−.594**	(−.953, −.235)
Radius matching	−.606***	(−.907, −.305)
Matching Algorithm	**Odds ratio**	**95% Confidence Interval)**
Suicide Ideation[b]		
Kernel matching	1.740***	(1.252, 2.420)
1-to-1 nearest neighbor without replacement	1.773*	(1.124, 2.797)
1-to-1 nearest neighbor with replacement	1.816*	(1.063, 3.103)
3-to-1 nearest neighbor with replacement	1.720**	(1.140, 2.594)
Radius matching	1.717**	(1.232, 2.392)
Drug Use[b]		
Kernel matching	2.292***	(1.469, 3.576)
1-to-1 nearest neighbor without replacement	2.384**	(1.279, 4.445)
1-to-1 nearest neighbor with replacement	2.590*	(1.220, 5.500)
3-to-1 nearest neighbor with replacement	2.390**	(1.342, 4.258)
Radius matching	2.255***	(1.441, 3.528)

Notes: All analyses are weighted and account for the Add Health survey design. Sample restricted to respondents who were present at waves I, III, and V and who had never been stopped or detained by police by wave III. Sample sizes (unweighted *N* of respondents): Kernel matching = 7,886 (1,319 treated; 6,567 controlled); 1-to-1 nearest neighbor without replacement = 2,564 (1,282 treated; 1,282 controlled); 1-to-1 nearest neighbor with replacement = 2,304 (1,319 treated; 985 controlled); 3-to-1 nearest neighbor with replacement = 3,548 (1,319 treated; 2,229 controlled); radius matching = 7,886 (1,319 treated; 6,567 controlled). Propensity scores estimated via a logistic regression model predicting unfair police treatment. All covariates shown in appendix A were used in the estimation of propensity scores. A caliper of .03 was specified during the matching procedures. Coefficients and odds ratios represent the average treatment effect on the treated.

Source: National Longitudinal Study of Adolescent to Adult Health (Add Health), 1995–2018.

[a]Ordinary least-squares regression.

[b]Logistic regression.

$^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$ (two-tailed tests).