Vicarious and Contingent Consequences of Adolescent Police Exposure

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ABSTRACT

Police stops are a pervasive form of criminal justice contact among adolescents that have adverse repercussions for mental health. Yet the mental health consequences of adolescent police stops likely proliferate, vicariously, to parents of adolescents exposed to this form of criminal justice contact. In this article, I conceptualize adolescent police stops as a stressor, drawing on the stress process perspective to examine how and under what conditions adolescent police stops damage the mental health of adolescents' mothers. The results, based on data from the Fragile Families and Child Wellbeing Study, suggest three conclusions. First, the mental health consequences of adolescent police stops proliferate vicariously, increasing depression and anxiety among adolescents' mothers. This relationship persists across a series of modeling strategies that progressively adjust for observed confounders, including potentially endogenous adolescent characteristics including delinquency, substance use, and other forms of criminal justice contact. Second, the relationship between adolescent police stops and mothers' mental health is contingent, especially concentrated among mothers with prior exposure to the criminal justice system (either via themselves or their adolescents' fathers). Third, mothers' emotional support buffers the relationship between adolescent police stops and mothers' mental health. Taken together, this research highlights the role of police exposure as a stressor with both vicarious and contingent consequences and, accordingly, documents the expansive and proliferating repercussions of police contact.

INTRODUCTION

The criminal justice system—with its attendant consequences for individuals and families—is a critical engine of social stratification in the United States (Alexander 2010; Kirk and Wakefield 2018; Wakefield and Uggen 2010). Its precipitous growth over the past half century has meant that a considerable number of individuals have some exposure to the criminal justice system. Police stops are the most common form of exposure, with an estimated 31 million individuals experiencing a stop or another form of involuntary contact annually (Langton and Durose 2016). Police stops, similar to other types of criminal justice contact such as arrest or incarceration, are especially common experiences among individuals of color and individuals living in economically disadvantaged and highly surveilled neighborhoods (Goffman 2009; Langton and Durose 2016; Rios 2011; Stuart 2016).

Despite being a pervasive and unequally distributed form of criminal justice contact with detrimental mental health consequences (Baćak and Nowotny 2018; Geller, Fagan, Tyler, and Link 2014; Sewell, Jefferson, and Lee 2016), virtually no social science research systematically examines the vicarious consequences of police contact (though see Geller 2018a; also see Swarns 2016 for a compelling media account). It is doubtful that the deleterious mental health consequences of this form of criminal justice contact end with injuries for the individuals who personally experience police stops. Instead, these consequences likely proliferate, vicariously, to the family members of those exposed to police contact. In particular, given the interdependency and close bonds between parents and children (Dornbusch 1989), police stops experienced by adolescents may damage mental health among parents of these adolescents (Elder, Johnson, and Crosnoe 2003; House, Landis, and Umberson 1988; Pearlin 2009). The inattention to the vicarious mental health consequences of police stops is a substantial oversight, particularly given

the consistent and emerging evidence that criminal justice contact (generally measured as incarceration) has deleterious consequences for the health of those experiencing the contact (Massoglia 2015) and the related evidence that the deleterious consequences of criminal justice contact (again, generally measured as incarceration) proliferates throughout families (Comfort 2008; Turney 2015; Western 2018).

The stress process perspective, which posits that stressors can have persistent health consequences, provides a theoretical lens for understanding the vicarious repercussions of adolescent police stops for mothers' mental health (Avison 2010; Pearlin 1989; Pearlin et al. 1981). Three aspects of the stress process perspective are especially relevant. First, stressors are contagious across individuals, with stressors experienced by one individual proliferating to increase depression and anxiety among those connected to them (Barr et al. 2018; Pearlin, Aneshensel, and Leblanc 1997). Second, the consequences of stressors are contingent, with deleterious mental health consequences concentrated among groups most commonly exposed to a particular stressor (Pearlin 1989). Third, social support buffers the deleterious mental health consequences of stressors (Cohen and Wills 1985; Thoits 1982). Taken together, the stress process perspective suggests that the stressor of adolescent police stops—which are generally involuntary and can involve invasive searches, emotional degradation, and physical violence— can have both vicarious and contingent consequences for mental health among adolescents' mothers (Rios 2011; Stuart 2016).

In this article, I advance scholarship on the criminal justice system, families, and health by examining the relationship between mothers' reports of adolescent police stops and mothers' mental health, measured by depression and anxiety. To do so, I use data from the Fragile Families and Child Wellbeing Study, a cohort of children born in urban areas around the turn of

the century and followed for 15 years, and a series of modeling strategies that account for observed differences between mothers who do and do not report their adolescent experienced a police stop. First, I examine the vicarious relationship between adolescent police stops and mothers' mental health, accounting for confounders (e.g., neighborhood conditions, adolescent behavior and delinquency, adolescent impulsivity, mothers' prior exposure to the criminal justice system) and potentially endogenous characteristics of adolescents such as other forms of criminal justice contact (e.g., arrest, incarceration). Second, I investigate contingencies in the relationship between adolescent police stops and mothers' mental health, considering heterogeneous associations across mothers' prior exposure to the criminal justice system. Third, I examine the role of mothers' emotional support in buffering the deleterious mental health consequences of adolescent police stops. This research provides one of the first accountings of the role of police exposure as a stressor with both vicarious and contingent consequences. This research also provides novel insight into the expansive repercussions of police contact for the young people entangled in the criminal justice system and for their families, underscoring how the criminal justice system contributes to health inequalities between families.

THE STRESS PROCESS PERSPECTIVE

The stress process perspective is a valuable theoretical framework for understanding the vicarious and contingent mental health consequences of adolescent police stops. The stress process perspective, frequently used to understand health inequalities, documents the unequal distribution of stressors across the population and the damaging consequences of stressors for health (Pearlin 1989; Pearlin et al. 1981).

Indeed, being stopped by the police is a distinctive stressor and, among adolescents, can be considered an adverse childhood experience (Feld 2013; Geller 2018b). Police stops are a form of legal social control that are often involuntary. They can be traumatic and upsetting. They can involve invasive searches of one's body or belongings, emotional degradation, and physical violence (Epp, Maynard-Moody, and Haider-Markel 2014; Rios 2011; Shedd 2015; Stuart 2016). The adversities associated with police exposure are likely especially remarkable for adolescents, who may be experiencing criminal justice contact for the first time (Feld 2013; Shedd 2015). Indeed, among adolescents, about one-third of police stops involve searches and one-quarter involve frisks (Geller 2018b). Adolescents also report harsh language, being handcuffed, physical force, and racial slurs as part of police stops (Geller 2018b). Given these adversities, it is perhaps unsurprising that a burgeoning literature documents the deleterious mental health consequences of police exposure. Individuals stopped by the police, compared to their counterparts, have a greater likelihood of mental health conditions such as depression, anxiety, powerlessness, and post-traumatic stress disorder (Baćak and Nowotny 2018; Geller 2018a; Geller et al. 2014; Sewell et al. 2016).

It is likely that the stressor of a police stop proliferates from the adolescents exposed to this criminal justice contact to the individuals connected to them, particularly their mothers. Three aspects of the stress process perspective are especially prescient in understanding the relationship between adolescent police stops and mothers' mental health: (1) stressors can proliferate from one individual to another, via a process called stress contagion, which can lead to adverse mental health among those vicariously exposed to the stressor; (2) the mental health consequences of stressors are concentrated among social groups most vulnerable to exposure to the stressor; and (3) social support may buffer the relationship between stressors and mental

health (Pearlin 1989; Pearlin and Bierman 2013). I elaborate on each of these three points below, highlighting the role of adolescent police stops as a distinctive stressor.

Adolescent Police Stops as a Form of Stress Contagion

First, stress contagion, a fundamental aspect of the stress process perspective, provides a framework for understanding the relationship between mothers' reports of adolescent police stops and mothers' mental health, net of characteristics that make adolescents more susceptible to being stopped by the police. Stress contagion, sometimes called *stress proliferation* (Pearlin et al. 1997; Thoits 2010) or *stress transfer* (Milkie 2010), is the notion that stressors experienced by one individual can have reverberating consequences across individuals, affecting not only the health of the person exposed to the stressor but also affecting the health of those connected to them (Barr et al. 2018; Pearlin and Bierman 2013; Pearlin et al. 2005). This is consistent with the life course perspective that highlights the interdependency, or linked lives, of individuals (Elder et al. 2003). Stress can reverberate within and between generations—from children to parents (e.g., Barr et al. 2018; Green et al. 2006), from parents to children (e.g., Turney 2014), from one romantic partner to another (e.g., Wildeman, Schnittker, and Turney 2012), and from individuals to their caregivers (e.g., Pearlin et al. 1997). Given the strong bonds between children and parents (Dornbusch 1989), stress contagion may be especially pronounced across these two groups (Thoits 2010; Wethington 2000) and, indeed, a large literature shows that *parental* criminal justice contact (generally measured as incarceration) has deleterious health consequences for children (Wildeman, Goldman, and Turney 2018).

Therefore, stress contagion suggests that an adolescent police stop is a stressor with reverberating health consequences for the mothers of adolescents exposed to this form of

criminal justice contact. To begin with, adolescent police stops may have immediate consequences for mothers' mental health. Some mothers may witness their adolescent being stopped by the police and the attendant invasiveness of the stop (Brunson 2007). Other mothers may experience trauma upon learning about the stop from their adolescent. Mothers may be distressed by their adolescents' report of the stop and its associated invasiveness, emotional degradation, and physical harm (Brunson and Weitzer 2009; Shedd 2015). Mothers may also suspect that their adolescent was unjustly stopped by the police, potentially the victim of racial profiling, or they may blame themselves for the police stop (Sewell and Jefferson 2016). All of these immediate reactions associated with the police stop may increase depression and anxiety among mothers.

Additionally, the vicarious consequences of adolescent police stops for mothers' mental health may expand beyond their immediate reactions. Mothers of adolescents stopped by the police may experience anticipatory stress (Pearlin and Bierman 2013). This anticipatory stress may be related to uncertainty about whether their adolescent will experience future criminal justice contact, either via additional police stops or via sanctions stemming from police stops (such as an arrest, conviction, or incarceration). This anticipatory stress may also extend beyond their uncertainty about future criminal justice contact, as mothers likely experience ambiguity about how the stop will affect aspects of their adolescents' future, including their attitudes toward the police, their employment prospects, their political participation, their engagement with institutions, and their physical and mental health (Baćak and Nowotny 2018; Brayne 2014; Geller and Fagan forthcoming; Lerman and Weaver 2014; Sewell and Jefferson 2016). Indeed, anticipatory stress, particularly anticipatory stress stemming from criminal justice contact, can engender depression and anxiety (Pearlin and Bierman 2013; Sugie and Turney 2017).

There may be other non-immediate consequences of adolescent police stops that alter mothers' mental health. Mothers and adolescents have a shared fate and, accordingly, both mothers and adolescents may adjust their roles in the wake of an adolescent police stop (Wethington 2000). For example, mothers may change their parenting behaviors after the police stop. They may more closely monitor their adolescent, instruct their adolescent to practice vigilance, or prepare their adolescent for future interactions with the police (Lee and Hicken 2016; Stuart 2016). Adolescents may also experience resultant role changes stemming from the police stop. They may become withdrawn or disengaged, they may desist or escalate their involvement in criminal activity, or they may become increasingly cynical of the criminal justice system. These adjusting of roles, by both mothers and adolescents, may increase mothers' depression and anxiety.

Contingencies in the Consequences of Adolescent Police Stops

Second, the stress process perspective posits that the health consequences of stressors are not uniform across social groups. Instead, the consequences of stressors are contingent on one's social position, with groups most commonly exposed to a stressor experiencing the greatest consequences of this stressor (Pearlin 1989). Individuals who are especially vulnerable to a particular stressor, such as a police stop, generally experience other adversities that can exacerbate the health consequences of the stressor. This aspect of the stress process perspective has been primarily used to understand the relationship between stressors and health among individuals exposed to the stressor, not the vicarious contagion of stressors across individuals, but it is likely that stress contagion has similarly contingent consequences for health.

In particular, the relationship between adolescent police stops and mothers' mental health may vary across mothers' prior exposure to the criminal justice system. Mothers' prior exposure to the criminal justice system—including their own police stops and incarceration as well as police stops and incarceration of their adolescents' fathers—is a form of social disadvantage that has not been previously considered as a moderator in the stress process perspective (which usually considers unequal distribution of stressors across demographic characteristics such as gender, race/ethnicity, and socioeconomic status [Thoits 2010]). But prior exposure to the criminal justice system is a form of social disadvantage that may condition the relationship between stressors and mental health. Indeed, given the intergenerational transmission of criminal justice contact (Rodriguez, Smith, and Zatz 2009; Roettger and Swisher 2011), adolescent police stops are likely concentrated among mothers with prior exposure to the criminal justice system.

Therefore, in accordance with the stress process perspective, the consequences of adolescent police stops may be concentrated among mothers with prior exposure to the criminal justice system (net of characteristics that make adolescents more susceptible to being stopped by the police). Mothers with their own exposure to the criminal justice system may have more accurate and comprehensive knowledge about what the stop could entail (including emotional degradation, racial slurs, or physical violence). These mothers may also have a heightened understanding of the potential for the stop to affect the life course of their adolescent. Additionally, mothers with prior exposure to the criminal justice system experience additional tensions such as economic and family instability (Schwartz-Soicher, Geller, and Garfinkel 2011; Turney and Wildeman 2018). It is likely that an adolescent police stop compounds and intensifies these already existing tensions, exacerbating depression and anxiety among mothers. Alternatively, it is possible that the consequences of adolescent police stop are concentrated

among mothers with no exposure to the criminal justice system, as some evidence suggests that stressors such as criminal justice contact can be quite consequential when they are unanticipated (Eaton 1978; Turney 2017; Wheaton 1982).

Emotional Support as a Buffer Against the Consequences of Adolescent Police Stops

Third, the stress process perspective posits that social support can buffer the relationship between stressors and health (Pearlin 1989; Thoits 1982, 2010). This aspect of the stress process perspective, similar to the aspect of the stress process perspective highlighting contingencies related to social position, has been primarily applied to understanding the buffering role of social support for individuals who experience stressors (and not to understanding the buffering role of social support for individuals connected to those who experience stressors). However, it is likely that similar buffering processes operate with respect to contagious stressors. In particular, the relationship between adolescent police stops and mothers' mental health may be conditioned by mothers' social support.

Social support is a coping resource that can attenuate the deleterious consequences of stressors for mental health (Billings and Moos 1981; Kessler and Essex 1982; Pearlin and Schooler 1978). Emotional support, even if it is simply perceived to be available (and not necessarily activated) is a particularly important buffering resource (Pearlin et al. 1981; Thoits 2010; Wethington and Kessler 1986). Mothers with emotional support, compared to mothers without emotional support, may experience fewer mental health consequences resulting from their adolescent's police stop. Emotional support may be efficacious by providing mothers an outlet for discussing their adolescent's police contact, the resultant (actual or anticipated) consequences of the police stop for their adolescent, and the ensuing consequences of the police

stop for themselves. This emotional support may reduce depression and anxiety among mothers who vicariously experience this stressor.

The Interconnectedness and Embeddedness of Stressors

The stress process perspective, as described above, provides a prescient framework for understanding the vicarious and contingent consequences of adolescent police stops. This perspective also highlights the interconnectedness and embeddedness of stressors (Pearlin 1989). Accordingly, though adolescent police stops may aggravate mental health among mothers, an alternative possibility is that observed associations between adolescent police stops and mothers' mental health results not from the police contact but instead from factors associated with police contact. Police contact is not randomly distributed across the population of adolescents. Instead, it is concentrated among boys, among racial/ethnic minorities, and among adolescents residing in economically disadvantaged neighborhoods (Geller 2018b). There is also a strong intergenerational component to police contact (Rodriguez et al. 2009; Thornberry 2005). Other predictors of police contact include adolescent behavior and delinquency, impulsivity, substance use, and other forms of criminal justice contact including arrest and incarceration. Given the non-random and unequal distribution of adolescent police exposure, analyses must adjust for characteristics that may precipitate adolescent police stops.

DATA, MEASURES, AND ANALYTIC STRATEGY

Data

I use data from the Fragile Families and Child Wellbeing Study to examine the vicarious and contingent consequences of adolescent police stops for mothers' mental health. These

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longitudinal data comprise a cohort of 4,898 children born to mostly unmarried parents in urban

areas around the turn of the century (Reichman, Teitler, Garfinkel, and McLanahan 2001).

Children's mothers and fathers completed an in-person interview when their children were born

(between February 1998 and September 2000). Parents completed subsequent telephone

interviews when their children were about 1, 3, 5, 9, and 15 years old (with only the child's

primary caregiver, usually the child's mother, being interviewed at this last wave where the

outcome variables are measured). Children completed interviews when they were 9 and 15 years

old (in person and on the telephone, respectively). Response rates were relatively high, with 86%

of eligible mothers and 78% of eligible fathers participating in the baseline survey. Among those

participating in the baseline survey, 89%, 86%, 85%, and 76% of mothers and 69%, 67%, 64%,

59% of fathers, respectively, completed the one-, three-, five-, and nine-year surveys. Response

rates for the 15-year survey were similarly high, with 77% of eligible primary caregivers and

74% of eligible adolescents completing a survey.

These data provide an unparalleled opportunity to examine the intergenerational

consequences of criminal justice contact and, in particular, the relationship between adolescent

police stops and mothers' mental health.[1] First, these data were collected during an era of

proactive policing, a period where adolescents are commonly exposed to police contact (Kubrin

et al. 2010). Second, they include information about adolescent police stops and time-varying

measures of mothers' mental health (allowing for an examination of changes in mothers'

depression and anxiety over time). Third, they contain extensive information about factors

associated with adolescent police stops including demographic characteristics, neighborhood

characteristics, parental contact with the criminal justice system, and adolescent delinquency.

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[1] These data have been used extensively to consider how parental incarceration affects children's wellbeing (e.g., Geller 2013; Geller et al. 2012; Haskins 2014; Turney 2017; Turney and Wildeman 2013).

Fourth, they include a relatively large sample of adolescents, making it possible to investigate contingencies in the relationship between adolescent police stops and mothers' mental health.

The analytic sample includes 3,063 observations. I exclude the 1,317 observations in which the primary caregiver did not participate in the 15-year survey and the additional 434 observations in which the primary caregiver respondent is not the adolescent's biological mother.[2] I also exclude the additional 83 observations missing data on either of the dependent variables, mothers' depression and anxiety. There are some small but statistically significant baseline differences between the full and analytic samples. Mothers in the analytic sample are more likely to be Black (51% compared to 48%), less likely to be Hispanic (25% compared to 27%), and less likely to be born outside the United States (14% compared to 17%). Mothers in the analytic sample are also more highly educated, as they are less likely than mothers in the full sample to have less than a high school diploma (31% compared to 35%). Mothers in the analytic and full samples are similarly likely to report depression and anxiety at the one-year survey.

Measures

Mothers' Mental Health. The outcome variables include two related yet distinct indicators of mothers' mental health, depression and anxiety, both measured at the 15-year survey. Mothers were asked questions from the Composite International Diagnostic Interview Short Form (CIDI-SF), Version 1.0, November 1998 (Kessler, Andrews, Mroczek, Ustun, and Wittchen 1998), a standardized instrument that is commonly used in large-scale surveys (Aalto-Setala et al. 2002).

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[2] Of the 3,580 primary caregivers interviewed at the 15-year survey, 3,146 were biological mothers, 257 were biological fathers, and 177 were someone else connected to the adolescent (including grandparents, aunts, and siblings). Supplemental analyses that expanded the analytic sample to include all primary caregivers, and not just mothers, produced results consistent with those presented.

First, mothers were asked a series of questions designed to measure Major Depressive Disorder (MDD). Mothers were first asked whether, at some time during the previous year, they had feelings of depression or were unable to enjoy things they normally found pleasurable. Those who experienced at least one of these two conditions most of the day, every day, for a two-week period were asked to report on the following seven additional symptoms: losing interest in things, feeling tired, experiencing a change in weight of at least 10 pounds, having trouble sleeping, having trouble concentrating, feeling worthless, and thinking about death. Those who answered affirmatively to at least one of the stem questions and three of the additional questions are considered as likely having MDD in the previous year. Nearly one-fifth (17.3%) of mothers reported depression.

Second, mothers were asked a series of questions that measure Generalized Anxiety Disorder (GAD). Mothers were first asked whether, at some point in the previous year, they had a period of feeling tense, worried, or anxious that lasted at least six months. Mothers who responded affirmatively to this question were then asked additional questions about their symptoms. They are considered as likely having GAD in the previous year if they answered affirmatively to the stem question and endorsed three additional criteria. The first criterion includes reporting the worry was excessive, lasting more days than not, and involving more than one thing. The second criterion includes reporting the worry was characterized by a lack of control. The third criterion includes reporting at least three of the following physiological symptoms: restless; keyed up or on edge; easily tired; difficulty keeping your mind on what you were doing; more irritable than usual; tense, sore, or aching muscles; and have trouble falling asleep or staying asleep. About 5.7% of mothers reported anxiety.

Adolescent Police Stops. The primary explanatory variable is a binary indicator that the mother reported the adolescent experienced a police stop. Mothers were asked the following: "Has {YOUTH} ever been stopped by the police while on the street, at school, in a car, or some other place?" Adolescents were also asked to report on police stops and, in supplemental analyses (described below), I explore the consistency between mother- and adolescent-reported stops and examine the association between adolescent-reported stops and mothers' mental health. However, the main analyses use mothers' reports of adolescent police stops, as many of the proposed pathways linking adolescent police stops to mothers' mental health presume mothers' knowledge of the stop (though certainly mothers may react to changes in their adolescent that stem from the stop, even if mothers are unaware of the source of these changes).

Additional analyses examine variation in adolescent police stops, as reported by adolescents. First, adolescents were asked how many times they were stopped by the police. This continuous variable ranges from 1 to 50 (mean = 2.73, standard deviation = 3.82). Second, adolescents reporting a police stop were asked if, during their most memorable police stop, the officer engaged in the following: (1) frisk or pat down; (2) search bags or pockets; (3) use harsh language; (4) use racial slurs; (5) threaten physical force; and (6) use physical force. This measure, an intrusion index, ranges from 0 to 6, with higher values indicating greater levels of intrusion (mean = 1.16, standard deviation = 1.54). Third, adolescents reporting a police stop were asked the following statements about stigma experienced since the police stop: (1) your friends have treated you with more respect (reverse coded); (2) people have avoided you; (3) people have used the fact that you were stopped to hurt your feelings; (4) people have been less willing to help you in your everyday life; (5) you sometimes avoid people because you think they might look down on you; (6) people are more uncomfortable around you; (7) you sometimes

hide the fact that you were stopped from your friends and family; (8) you think it is a good idea

to keep your past experiences with the police a secret; (9) you would advise a friend you had

been stopped by the police not to tell others about it; (10) you wait until you know someone well

to tell them about your past experiences with the police; (11) you would be less likely to apply

for a job if you knew that the employer would ask about your past experiences with the police.

This measure, a stigma index, ranges from 0 to 11, with higher values indicating more stigma

associated with the police stop (mean = 2.94, standard deviation = 2.08).

Control Variables. The multivariate analyses adjust for mother, father, and adolescent

characteristics associated with adolescent police stops and mothers' mental health. Time-

invariant characteristics are measured at baseline and time-varying characteristics are measured

at the nine-year survey unless otherwise noted. Therefore, all control variables are measured

prior to the measure of adolescent police stops.[3]

Demographic characteristics of mothers and fathers include the following: race/ethnicity

(White [non-Hispanic], Black [non-Hispanic], Hispanic, other race [non-Hispanic]); foreign-

born; age, a continuous variable; and family structure in adolescence, a binary variable indicating

the parent lived with both biological parents at age 15.

Family characteristics include the following: relationship status between the parents

(married, cohabiting, no residential relationship); repartnership status; relationship quality,

ranging from 1 (*poor*) to 5 (*excellent*); and number of children in the household.

Socioeconomic characteristics include the following: employment, a binary variable

indicating the respondent worked for pay in the last week; income-to-poverty ratio, a continuous

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[3] Adolescents were asked to report on their age at their first police stop at the 15-year survey. Of those who reported any stop, 4% reported that their first police stop occurred before age 9. Supplemental analyses excluding these observations are substantively similar to those presented.

measure based on household composition and federal poverty guidelines; and material hardship, a sum of 12 types of difficulties making ends meet in the past year (e.g., were evicted from home or apartment for not paying rent or mortgage, moved in with other people even for a little while because of financial problems).

Health characteristics include the following: parenting stress, an average of responses to the following four statements (1 = *strongly disagree* to 4 = *strongly agree*): (a) being a parent is harder than I thought it would be; (b) I feel trapped by my responsibilities as a parent; (c) I find that taking care of my children is much more work than pleasure; and (d) I often feel tired, worn out, or exhausted from raising a family (α = .66 for mothers and .65 for fathers); overall health, a binary variable indicating the parent reports being in fair or poor health; heavy drinking, a binary variable indicating the parent reports having four or more drinks in one sitting in the past month; and illicit drug use, a binary variable indicating the parent reports using drugs without a doctor's prescription, in larger amounts than prescribed, or for a longer period than prescribed in the past month.

The multivariate analyses also adjust for neighborhood characteristics. Neighborhood disadvantage is measured with the following four indicators: (a) percent in neighborhood without college degree; (b) percent in neighborhood unemployed; (c) percent in neighborhood with household incomes below the poverty line; and (d) percent in neighborhood receiving public assistance (α = .74 for mothers and .77 for fathers). These indicators, measured with tract-level data from the 2000 Census, are summed together and standardized. Neighborhood race/ethnic composition is measured with the following three continuous variables (also measured with tract-level data from the 2000 Census): percent White (non-Hispanic) in neighborhood, percent Black

(non-Hispanic) in neighborhood, and percent Hispanic in neighborhood. The analyses also adjust

for neighborhood social control and neighborhood social cohesion.[4]

The multivariate analyses adjust for a number of additional parental characteristics that

may be especially associated with adolescent police stops and mothers' mental health. Mothers'

and fathers' cognitive skills is measured, at the three-year survey, by the Weschler Adult

Intelligence Scale (Weschler 2001). Mothers' and fathers' impulsivity is measured with an

abbreviated form of Dickman's (1990) impulsivity scale.[5] Parental criminal justice contact is

measured with the following: mother police stops, a binary variable indicating the mother

reported ever being stopped by the police but not picked up or arrested, constructed by

combining responses to questions ascertained at the three-, five-, and nine-year surveys; father

police stops, a binary variable indicating the father reported ever being stopped by the police but

not picked up or arrested, constructed by combining responses to questions ascertained at the

one-, three-, five-, and nine-year surveys; mother incarceration, a binary variable indicating the

mother was incarcerated in jail or prison since the one-year survey, constructed using both

parents' reports of her incarceration across waves; and father incarceration, a binary variable

indicating the father was incarcerated in jail or prison since the one-year survey, also constructed

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[4] Neighborhood social control is measured by averaging responses to the following five statements (1 = *very unlikely* to 5 = *very likely*): (a) neighbors intervene if children were skipping school and hanging out at street corner; (b) neighbors intervene if children were spray-painting graffiti on a local building; (c) neighbors intervene if children were showing disrespect to an adult; (d) neighbors intervene if a fight broke out in front of their house; and (e) neighbors intervene if the fire station closest to their house was threatened with budget cuts (α = .88). Neighborhood social cohesion is measured by averaging responses to the following five statements (1 = *strongly disagree* to 4 = *strongly agree*): (a) people around here are willing to help their neighbors; (b) this is a close-knit neighborhood; (c) people in this neighborhood can be trusted; (d) people in this neighborhood generally don't get along with each other (reverse coded); and (e) people in this neighborhood do not share the same values (reverse coded) (α = .79).
[5] Impulsivity is measured by averaging responses to the following six statements (1 = *strongly disagree* to 4 = *strongly agree*): (a) I often say what comes into my head without thinking; (b) often, I don't think enough before I act; (c) I often say/do things without considering the consequences; (d) I often get in trouble because I don't think before I act; (e) plans don't work out because I don't go over them carefully; and (f) I make up my mind without considering the situation from all angles (α = .83 for mothers and .84 for fathers, measured at the three- and one-year surveys, respectively).

using both parents' reports of his incarceration across waves. The multivariate analyses also adjust for lagged indicators of mothers' mental health (with depression measured at the nine-year survey and anxiety measured at the three-year survey, the last wave it is available prior to the 15-year survey).[6]

Finally, adolescent characteristics include the following: gender, a binary variable indicating the adolescent is male; age (in years) at the 15-year survey; low birth weight, a binary variable indicating the adolescent weighed less than 2,500 grams at birth; impulsivity (with adolescents asked to report on the same statements asked of their parents; $\alpha = .79$); and delinquency, measured by self-reports about participating in 17 delinquent activities from the "Things that You Have Done" scale (Maumary-Gremaud 2000; also see Elliott, Huizinga, and Menard 1989).[7]

Some analyses adjust for the following additional characteristics of adolescents, measured at the 15-year survey (and therefore possibly endogenous to police stops): police exposure at school, a binary variable indicating a police officer is regularly stationed at the adolescent's school; smoking, a binary variable indicating the adolescent reports ever smoking an entire cigarette; drinking, a binary variable indicating the adolescent reports ever drinking

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[6] Supplemental analyses that instead measure lagged depression at the three-year survey are substantively similar to those presented.

[7] Youth were asked to report if they had ever done the following at the nine-year survey: (a) purposely damaged or destroyed property that wasn't yours; (b) taken or stolen something that didn't belong to you from another person or from a store; (c) taken some money at home that did not belong to you, like from your mothers' purse or from your parents' dresser; (d) cheated on a school test; (e) had a fist fight with another person; (f) hurt an animal on purpose; (g) gone into somebody's garden, backyard, house, or garage when you were not supposed to be there; (h) run away from home; (i) skipped school without an excuse; (j) secretly taken a sip of wine, beer, or liquor; (k) smoked marijuana, grass pot, weed; (l) smoked a cigarette or used tobacco; (m) been suspended or expelled from school; (n) written things or sprayed paint on walls or sidewalks or cars; (o) purposely set fire to a building, a car, or other property or tried to do so; (p) avoided paying for things such as moves, bus or subway rides, or food; and (q) thrown rocks or bottles at people or cars. These 17 items are summed to create a variety score (Thornberry and Krohn 2000). Supplemental analyses that instead limit the measure of delinquency to illegal behavior produce substantively similar results.

alcohol more than one or two times without parents; drug use, a binary variable indicating the respondent reports ever using marijuana or another drug; peer delinquency; and additional criminal justice contact, measured with two binary variables indicating the adolescent was ever arrested or incarcerated.[8]

Mothers' Emotional Support. Some analyses examine variation in the relationship between adolescent police stops and mothers' mental health by mothers' emotional support. Emotional support is measured by an affirmative response to the following question at the 15-year survey: "Is there any special person you know that you feel very close with – someone you share confidences and feelings with; someone you can depend on?"

Analytic Strategy

The multivariate analyses proceed in three stages. In the first analytic stage, I use logistic regression models to estimate mothers' mental health, measured by depression and anxiety, as a function of mothers' reports of adolescent police stops. The first model presents the unadjusted relationship between adolescent police stops and mothers' mental health. The second model adjusts for the mother, father, and adolescent characteristics described above. The third model further adjusts for a lagged dependent variable, which estimates the relationship between adolescent police stops and mothers' mental health net of mothers' prior mental health. The fourth model further adjusts for seven endogenous characteristics of adolescents described above

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[8] Peer delinquency is measured by averaging responses to the following 11 statements (1 = *never* to 3 = *often*): (a) friend smoked an entire cigarette; (b) friend had a drink of beer, wine, or liquor more than two or three times; (c) friend tried marijuana; (d) friend tried other types of illegal or prescription drugs or other substances to get high; (e) friend asked you to go drinking with them; (f) friend gave or sold marijuana to you; (g) friend deliberately damaged property that didn't belong to them; (h) friend stole something worth more than $50; (i) friend used or threatened to use a weapon to get something from someone; (j) friend sold marijuana or other drugs; and (k) friend stole something worth less than $50 ($\alpha$ = .85).

(including other forms of criminal justice contact such as arrest and incarceration). This model provides a conservative estimate of the relationship between adolescent police stops and mothers' mental health. I also estimate mothers' mental health as a function of three types of variation in police stops: (1) number of police stops, (2) intrusion of police stops, and (3) stigma of police stops.

In the second analytic stage, I examine contingencies in the relationship between mothers' reports of adolescent police stops and mothers' mental health. I consider heterogeneity across four indicators of parent criminal justice contact (mothers' police stops, fathers' police stops, mothers' incarceration, and fathers' incarceration), all measured prior to the explanatory and outcome variables. I estimate the relationship between adolescent police stops and mothers' mental health separately across subgroups, adjusting for all parent and adolescent characteristics including the lagged dependent variable, and test for statistically significant differences across subgroups (Paternoster, Brame, Mazerolle, and Piquero 1998).[9]

In the third analytic stage, I examine heterogeneity in the relationship between mothers' reports of adolescent police stops and mothers' mental health by social support. I estimate this association separately for the following two subgroups: mothers who report available emotional support at the 15-year survey and mothers who do not report available emotional support at the 15-year survey. I again test for statistically significant differences across subgroups (Paternoster et al. 1998).

Most mother- and adolescent-reported variables are missing fewer than 10% of observations. I preserve observations with multiple imputation, using the multivariate normal

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[9] It is not advisable to compare results across logistic regression models (Mood 2010). Therefore, in supplemental analyses, I estimated the relationship between adolescent police stops and mothers' mental health with linear probability models. These analyses produced coefficients that were comparable with the average marginal effects from the logistic regression models.

method and combining estimates across 20 data sets (Allison 2001). Additionally, all models

adjust for city fixed effects to account for the fact that respondents are drawn from 20 cities in

the United States.

RESULTS

Descriptive Characteristics of Sample, by Adolescent Police Stops

Table 1 presents descriptive statistics of the sample. About 12.3% of mothers reported their

adolescent had been stopped by the police. The majority of mothers in the sample identify as

racial/ethnic minorities. About half (50.6%) are Black and one-quarter (24.9%) are Hispanic. At

the nine-year survey, about two-fifths of mothers are living with the child's biological father

(with 31.3% in marital relationships and 9.2% in cohabiting relationships) and about one-third

(33.7%) of mothers have a romantic partner who is not the child's biological father. The majority

of mothers (61.5%) and fathers (44.6%) have education beyond high school. About one-fifth

(20.4%) of mothers and three-fifths (59.4%) of fathers report ever being stopped by the police

themselves. Adolescents, on average, are 15.6 years old at the 15-year survey.

[Table 1 about here.]

Table 1 also shows stark differences in descriptive characteristics across two groups,

mothers who do and do not report their adolescent had been stopped by the police. The

descriptive differences in mothers' mental health are striking. Mothers reporting an adolescent

police stop, compared to mothers not reporting an adolescent police stop, are more than twice as

likely to experience depression (30.1% compared to 15.5%, $p < .001$) and nearly three times as

likely to experience anxiety (12.8% compared to 4.7%, $p < .001$).

There are other descriptive differences across the two groups. In terms of demographic characteristics, mothers reporting adolescent police stops, compared to mothers not reporting adolescent police stops, are less likely to be White (16.3% compared to 21.5%, $p < .05$), more likely to be Black (61.2% compared to 49.1%, $p < .001$), and less likely to be Hispanic (19.4% compared to 25.6%, $p < .01$). Mothers reporting adolescent police stops are less likely to be employed (59.4% compared to 64.6%, $p < .10$), have lower income-to-poverty ratios (1.435 compared to 2.172, $p < .001$), and report more material hardship (2.015 compared to 1.386, $p < .001$). Mothers reporting adolescent police stops live in more disadvantaged neighborhoods (0.154 compared to -0.022, $p < .001$), live in neighborhoods with fewer Whites (32.5% compared to 37.7%, $p < .01$) and more Blacks (40.0% compared to 34.7%, $p < .01$), and live in neighborhoods with less social cohesion (2.713 compared to 2.781, $p < .05$).

Estimating Mothers' Mental Health as a Function of Adolescent Police Stops

The descriptive characteristics show striking differences in mothers' depression and anxiety by mothers' reports of adolescent police stops. But these descriptive differences in mental health may result not from the police contact and instead from characteristics associated with contact.

Main Analyses Estimating Depression. Table 2 presents results from logistic regression models estimating the relationship between mothers' reports of adolescent police stops and mothers' depression. Model 1, the unadjusted model, shows that mothers reporting an adolescent police stop, compared to mothers not reporting an adolescent police stop, have 2.34 times the odds of depression ($b = 0.851, p < .001$). In Model 2, which adjusts for an array of mother, father, and adolescent characteristics, this association is reduced in magnitude but remains statistically significant ($b = 0.506, OR = 1.66, p < .01$). The association persists in Model 3,

which further adjusts for prior depression ($b = 0.521$, OR $= 1.68$, $p < .01$), and in Model 4, which

further adjusts for endogenous characteristics of adolescents such as peer delinquency, substance

use, and other types of criminal justice contact ($b = 0.527$, OR $= 1.69$, $p < .01$).

The final conservative model shows that mothers reporting an adolescent police stop,

compared to their counterparts, have 1.69 times the odds of depression. Importantly, this

association is independent of mothers' reports of adolescent arrest and incarceration. The

coefficients for adolescent arrest and incarceration do not reach statistical significance, and tests

for differences across coefficients shows that the adolescent police stops coefficient is

significantly larger than the adolescent incarceration coefficient ($p = .004$), suggesting the

intergenerational consequences stem from police contact. As relatively few mothers report an

adolescent arrest or incarceration (5.8% and 2.9%, respectively), these statistically non-

significant coefficients should be interpreted cautiously.

[Table 2 about here.]

The covariates work as expected. For example, in the final model, mothers' material

hardship ($b = 0.093$, OR $= 1.10$, $p < .01$) and mothers' fair/poor health ($b = 0.472$, OR $= 1.60$, p

$< .01$) are both positively associated with depression. Mothers' prior depression is also

associated with mothers' depression at the 15-year survey ($b = 1.234$, OR $= 3.44$, $p < .001$).

Notably, mothers' own police stops and fathers' police stops are not independently associated

with mothers' depression and, in fact, the coefficient for adolescent police stops is statistically

different than the coefficients for mothers' stops ($p = .006$) and fathers' stops ($p = .007$). Fathers'

incarceration is positively associated with mothers' depression ($b = 0.207$, OR $= 1.23$, $p < .05$),

and this coefficient is not statistically different from the coefficient for adolescent police stops (p

$= 0.172$).

Main Analyses Estimating Anxiety. Table 3 presents results from logistic regression

models estimating the relationship between mothers' reports of adolescent police stops and

mothers' anxiety. These results are consistent with those estimating depression. Model 1, the

unadjusted model, shows that mothers reporting an adolescent police stop, compared to mothers

not reporting an adolescent police stop, have a greater likelihood of anxiety ($b = 1.092$, OR =

2.98, $p < .001$). This association persists but is reduced in magnitude with the inclusion of

control variables ($b = 0.702$, OR = 2.02, $p < .001$), prior anxiety ($b = 0.689$, OR = 1.99, $p <$

.001), and endogenous adolescent characteristics including other forms of criminal justice

contact ($b = 0.668$, OR = 1.95, $p < .001$). This final conservative model shows that adolescent

police stops are associated with nearly twice the likelihood of anxiety among mothers. Similar to

the estimates of mothers' depression, tests for differences across coefficients shows that the

adolescent police stops coefficient is significantly larger than the adolescent incarceration

coefficient ($p = .019$), again suggesting the intergenerational consequences stem from police

exposure.

[Table 3 about here.]

Similar to the estimates of mothers' depression, the covariates estimating mothers'

anxiety work as expected. Socioeconomic characteristics are linked to anxiety, with employment

negatively associated with anxiety ($b = -0.819$, OR = 0.44, $p < .001$) and material hardship

positively associated with anxiety ($b = 0.134$, OR = 1.14, $p < .01$). Mothers' parenting stress ($b =$

0.376, OR = 1.46, $p < .01$) and mothers' fair/poor health ($b = 0.571$, OR = 1.77, $p < .01$) are both

positively associated with anxiety. Mothers' prior anxiety is also associated with mothers'

anxiety at the 15-year survey ($b = 1.139$, OR = 3.12, $p < .001$). Importantly, with the exception

of fathers' incarceration, which is associated with mothers' anxiety, other types of criminal

justice system contact are not associated with mothers' anxiety. In fact, the coefficient for adolescent police stops is statistically significantly different than the coefficient for mothers' police stops ($p = 0.006$) and fathers' police stops ($p = 0.007$).

Supplemental Analyses. I conduct two sets of supplemental analyses that examine the relationship between adolescent police stops and mothers' mental health. In the first set of supplemental analyses, I consider two alternative measures of adolescent police stops, as mothers and adolescents do not always both report the adolescent experienced a police stop. Descriptive analyses show that mothers are more likely to report an adolescent police stop when the adolescent reports a greater number of stops (3.5 compared to 2.4 when only the adolescent reports a stop, $p < .01$) and when the adolescent reports higher intrusiveness of their most memorable stop (1.8 compared to 0.9 when only the adolescent reports a stop, $p < .001$). The discordance between mothers' and adolescents' reports of police stops captures some qualitative differences in police stops (with mothers being more likely to report adolescent police stops when they are frequently occurring or invasive).

The first specification replaces mothers' reports of adolescent police stops with a binary variable indicating either the mother or adolescent reports the adolescent was stopped by the police (31.1% of the sample). In the final model (the equivalent of Model 4 of Tables 2 and 3), this inclusive indicator of police stops is significantly associated with a greater likelihood of mothers' depression ($b = 0.264$, OR $= 1.30$, $p < .01$) and anxiety ($b = 0.317$, OR $= 1.37$, $p < .05$). The second specification replaces mothers' reports of adolescent police stops with a binary variable indicating the adolescent reports a police stop (26.6% of the sample). In the final model, adolescents' reports of their own police stops is significantly associated with a greater likelihood of mothers' depression ($b = 0.217$, OR $= 1.24$, $p < .05$) but not mothers' anxiety ($b = 0.212$, OR

= 1.24, p = .160). In both alternative specifications, the magnitude of the police stops coefficient is smaller than in the models presented, providing further support for the main findings (as one would expect mothers' reports of adolescent stops to be more consequential for mothers' mental health than adolescents' reports of their own stops).[10]

In the second set of supplemental analyses, I estimate the relationship between mothers' reports of adolescent police stops and mothers' mental health using propensity score matching. I estimate a logistic regression model that generates a propensity score, the probability of experiencing an adolescent police stop (Appendix Table 1); ensure the means of covariates are statistically indistinguishable across treatment and control groups (Appendix Table 2); use kernel matching to estimate differences between the treatment and control groups (Appendix Table 3); and estimate Mantel-Haenszel bounds to evaluate how sensitive the propensity score results are to unmeasured characteristics (Appendix Table 4). The results are consistent with the results presented in Tables 2 and 3, with adolescent police stops being associated with a greater likelihood of mothers' depression and anxiety. These results hold across matched estimates; matched estimates that adjust for potentially endogenous characteristics of adolescents; and doubly robust matched estimates that further adjust for all control variables. Further, sensitivity analyses show that unmeasured characteristics would need to be substantial.

Variation in Adolescent Police Stops. The prior analyses establish a robust relationship between adolescent police stops and mothers' mental health. However, there exists variation in

[10] In additional analyses, I estimated a multinomial logistic regression model to examine predictors of discordance in mother- and adolescent-reported adolescent stops (r = .31). Relatively few variables independently predict discordance. Mother-reported stops, compared to both mother- and adolescent-reported stops, are less common when mothers report heavy drinking (b = -0.941, p < .05) and among mothers of boys (b = -0.871, p < .01). Adolescent-reported stops, compared to both mother- and adolescent-reported stops, are negatively correlated with parenting stress (b = -0.298, p < .05), heavy drinking (b = -0.537, p < .05), and when the adolescent is a boy (b = -0.518, p < .01). This is positively correlated with adolescent age (b = 0.351, p < .01). Discordance is not associated with mothers' depression or anxiety.

individual police stops and, accordingly, I estimate mothers' mental health as a function of three types of variation: (1) number of police stops, (2) intrusion of police stops, and (3) stigma of police stops. The mental health consequences may be especially pronounced if the adolescent experiences multiple stops, if the adolescent reports a particularly invasive stop, or if the adolescent reports stigma stemming from the stop. Analyses, which adjust for all control variables and are necessarily limited to observations in which adolescents report a police stop, suggest three conclusions (Table 4). First, there is a positive association between number of adolescent police stops and mothers' mental health. Each additional police stop is associated with a 4% increase in the odds of mothers' depression ($b = 0.043$, OR $= 1.04$, $p < .01$) and a 6% increase in the odds of mothers' anxiety ($b = 0.060$, OR $= 1.06$, $p < .01$). Second, intrusion during police stops is associated with mothers' anxiety but not depression. Each additional form of intrusion is associated with a 31% increase in the odds of mothers' anxiety ($b = 0.269$, OR $= 1.31$, $p < .01$). Third, the stigma of police stops is not associated with mothers' depression or anxiety, with adolescent police stops being consequential for mothers' mental health regardless of the stigmatizing repercussions reported by adolescents.

[Table 4 about here.]

Contingencies in the Relationship between Adolescent Police Stops and Mothers' Mental Health

The stress process perspective suggests that stressors are especially consequential for subgroups of the population most likely to experience the stressor. As shown in Figure 1, mothers' reports of adolescent police stops are not equally distributed across mothers' prior exposure to criminal justice contact. For example, 15.7% of mothers stopped by the police themselves, compared to

11.4% of other mothers, report their adolescent was stopped by the police ($p < .001$). Similarly, 14.3% of mothers who share children with fathers stopped by the police, compared to 9.3% of other mothers, report their adolescent was stopped by the police ($p < .001$). These group differences persist across mothers' incarceration history (21.1% compared to 11.6%, $p < .001$) and fathers' incarceration history (18.0% compared to 6.9%, $p < .001$).

[Figure 1 about here.]

Table 5 presents results from logistic regression models estimating the relationship between mothers' reports of adolescent police stops and mothers' mental health across exposure to four different types of criminal justice contact. Panel A documents the consequences of adolescent police stops separately for mothers who have and have not experienced their own police stop, with different patterns across outcomes. The relationship between adolescent police stops and depression is larger among mothers who have not experienced their own police stop ($b = 0.680$, OR $= 1.97$, $p < .01$) than among mothers who have experienced their own police stop ($b = 0.182$, OR $= 1.20$, $n.s.$). Alternatively, the relationship between adolescent police stops and anxiety is larger among mothers who have experienced their own police stop ($b = 1.515$, OR $= 4.55$, $p < .001$) than among mothers who have not experienced their own police stop ($b = 0.539$, OR $= 1.71$, $p < .05$). The differences across groups are statistically significant for anxiety ($z = 2.30$) but not depression ($z = 1.28$).

[Table 5 about here.]

The remaining panels document the consequences of adolescent police stops by three other types of criminal justice contact: fathers' police stops, mothers' incarceration, and fathers' incarceration. Adolescent police stops are more consequential for anxiety among mothers connected to men who have been stopped by the police ($b = 0.993$, OR $= 2.70$, $p < .001$) than

among mothers connected to men who have not been stopped by the police (b = -0.144, OR = 0.87, *n.s.*). Similarly, adolescent police stops are more consequential for anxiety among mothers connected to men who have been incarcerated (b = 1.012, OR = 2.75, p < .001) than among mothers connected to men who have not been incarcerated (b = -1.158, OR = 0.31, p < .10). These differences across groups are statistically significant (z = 1.94 and 3.07, respectively).[11] Taken together, this table documents that the relationship between adolescent police stops and mothers' anxiety, in particular, is concentrated among mothers exposed to criminal justice contact themselves or via their offspring's fathers.[12]

Buffering Role of Emotional Support

Finally, the stress process perspective suggests that social support buffers the deleterious consequences of stressors for health, which I consider in Table 6. This table presents results from logistic regression models estimating the relationship between mothers' reports of adolescent police stops and mothers' mental health across two subgroups: mothers with emotional support and mothers without emotional support.

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[11] It is not possible to estimate the relationship between adolescent police stops and mothers' anxiety among mothers with an incarceration history because of sample size issues.

[12] Following the stress process perspective, and its proposition about unequal consequences of stressors, adolescent police stops would be most consequential for mothers of boys, mothers of color, and mothers of low socioeconomic status. Indeed, in these data, mothers' reports of adolescent police stops are more common among males than females (16.8% compared to 7.6%), among Blacks than among Whites or Hispanics (14.9% compared to 9.6% and 10.6%, respectively), among mothers with a high school diploma or less than among mothers with education beyond high school (14.9% compared 10.7%), and among mothers at or below the poverty line than mothers above the poverty line (16.7% compared to 10.0%). In supplemental analyses, I estimated the relationship between mothers' reports of adolescent police stops and mothers' mental health across demographic subgroups. Results suggest three conclusions. First, the relationship between adolescent police stops and mothers' depression is statistically significantly larger among mothers of girls (b = 0.884, OR = 2.42, p < .001) than among mothers of boys (b = 0.350, OR = 1.42, p < .10). Second, the relationship between adolescent police stops and mothers' anxiety is statistically significantly larger among White mothers (b = 1.724, OR = 5.61, p < .01) than Black mothers (b = 0.429, OR = 1.54, p < .05). Third, there are no differences in the relationship between adolescent police stops and mothers' mental health by mothers' educational attainment or poverty status.

Among mothers with emotional support, there is a positive and statistically significant relationship between adolescent police stops and mental health problems. Mothers who report their adolescent was stopped by the police, compared to mothers who do not report their adolescent was stopped by the police, have 1.53 times the odds of depression ($b = 0.428, p < .01$) and 1.66 times the odds of anxiety ($b = 0.509, p < .05$). There is also a positive and statistically significant relationship between adolescent police stops and mental health problems among mothers without emotional support, with the magnitude of the association larger among this group. Mothers reporting an adolescent police stop, compared to their counterparts, have 4.71 times the odds of depression ($b = 1.550, p < .05$) and 6.09 times the odds of anxiety ($b = 1.806, p < .10$). The differences across groups are statistically significant for depression ($z = -1.71$) but not anxiety ($z = -1.18$). Supplemental analyses that instead use the full sample and include an interaction term between adolescent police stops and emotional support show that emotional support significantly buffers the consequences of adolescent police stops for depression and anxiety.

[Table 6 about here.]

DISCUSSION

Police stops are the most common form of criminal justice contact and, among adolescents, may be considered an adverse childhood experience with pervasive deleterious consequences. Police stops can be traumatic experiences that include invasive searches, emotional degradation, and physical violence. This form of legal social control can also precipitate anticipatory stress about the possible repercussions of the stop. Despite the common and consequential nature of this type of criminal justice contact, police stops have received less systematic research attention than the

more commonly examined forms of criminal justice contact including arrests, convictions, and incarcerations (though see Baćak and Nowotny 2018; Brayne 2014; Epp et al. 2014; Geller 2018a, 2018b; Geller and Fagan forthcoming; Geller et al. 2014; Goffman 2009; Rios 2011; Sewell and Jefferson 2016; Sewell et al. 2016; Stuart 2016). In this article, I draw on the stress process perspective and conceptualize adolescent police stops as a distinctive stressor, an adverse experience that challenges the adaptive functioning of individuals and those connected to them (Avison 2010; Pearlin 1989, 2009). Using data from the Fragile Families and Child Wellbeing Study, a cohort of children born in urban areas who were adolescents during the peak of the proactive policing era, I provide the first accounting of the vicarious and contingent consequences of adolescent police stops for mothers of adolescents (net of adolescent characteristics—such as behavior and delinquency—that may trigger police stops).

Results suggest three primary conclusions that correspond to tenets of the stress process perspective, a theoretical framework linking the unequal distribution of stressors to health inequalities across the life course (Pearlin 1989). First, results show that the mental health consequences of adolescent police stops are vicarious. Mothers who report their adolescent was stopped by the police, compared to their counterparts, have a greater likelihood of depression and anxiety. These relationships persist after adjusting for factors associated with adolescent police stops, including demographic, socioeconomic, and neighborhood characteristics as well as mothers' own experiences with the criminal justice system. These relationships also persist after adjusting for lagged dependent variables, which account for changes in mental health before and after adolescent police exposure, and potentially endogenous adolescent characteristics including peer delinquency, substance use, and other forms of criminal justice contact (measured as arrest and incarceration). Adolescent police stops are more consequential for mothers' mental health

than her own criminal justice contact (a finding that should be interpreted cautiously, as adolescent police stops may have occurred more recently than the mothers' own criminal justice contact and consequences may dissipate over time).

The deleterious vicarious consequences of mothers' reports of adolescent police stops for mothers' mental health is consistent with the stress process perspective and, specifically, the concept of stress contagion. Stress contagion, sometimes called stress proliferation or stress transfer, posits that stressors proliferate, vicariously, from the individual exposed to the stressor to those connected to that individual (Barr et al. 2018; Pearlin 1989; Pearlin et al. 1997). Indeed, the stressor of an adolescent police stop proliferates across generations, from offspring to parents, increasing depression and anxiety among mothers of adolescents experiencing this stressor (Thoits 2010). The police stop, and the associated trauma experienced by the adolescent, may facilitate immediate distress and worry among mothers. The police stop may also engender mothers' uncertainty about future (Pearlin and Bierman 2013), may oblige mothers to modify their roles (Wethington 2000), and may alter adolescent attitudes and behaviors (Geller and Fagan forthcoming), all of which can increase depression and anxiety among mothers.

Data limitations preclude a precise and systematic examination of the mechanisms linking mothers' reports of adolescent police stops to mothers' mental health, but the results do provide suggestive evidence of possible pathways. First, the results show the invasiveness of police stops is associated with a greater likelihood of anxiety among mothers, indicating that characteristics of the stop—such as frisks, racial slurs, or physical force—directly increase mothers' anxiety. Second, the results show that adolescent police stops are more consequential for mothers' mental health than adolescent incarceration (albeit a relatively rare event among adolescents, as described above), suggesting that anticipatory stress stemming from police

contact may be a pathway linking adolescent police stops to mothers' mental health (Pearlin and Bierman 2013). Police stops may prompt uncertainty about aspects of the adolescents' future, including ambiguity about how the adolescent will respond to the stop and ambiguity about future criminal justice contact. Third, analyses that substitute the measure of mother-reported stops with adolescent-reported stops were included to strengthen causal inference, but these analyses also provide suggestive evidence of mechanisms. The fact that the relationship between adolescent police stops and mothers' mental health exists, albeit to a lesser extent, absent mothers' knowledge of the stop suggests that police stops engender changes in adolescents that increase mothers' depression and anxiety. Future research should systematically interrogate these and other underlying processes linking adolescent police stops to mothers' mental health.

Additionally, the results show that the consequences of mothers' reports of adolescent police stops are contingent. The stress process perspective posits that both the prevalence and consequences of stressors are concentrated among vulnerable populations (Pearlin et al. 1981; Pearlin 1989). Results provide consistent evidence that the prevalence of adolescent police stops is concentrated among a vulnerable population that has been historically excluded from the stress process perspective, individuals with prior exposure to the criminal justice system. Results also provide consistent evidence that the consequences of adolescent police stops are contingent on this prior exposure to the criminal justice system. Mothers with prior exposure—either via their own police stop or incarceration or via a police stop or incarceration of their adolescent's father—are more likely to experience depression and, in particular, anxiety stemming from the stop. It may be that these mothers have an acute awareness of the meaning and consequences of the police stop for their adolescent. It may also be that, for these mothers, the adolescent police stop occurs in a context of additional stressors (e.g., economic insecurity, family instability) and

the accumulation of stressors exacerbates the deleterious mental health consequences of adolescent police stops. Future research should also interrogate these potential contingent pathways.

Finally, the vicarious consequences of mothers' reports of adolescent police stops are contingent on mothers' available emotional support, with emotional support partially buffering the deleterious mental health consequences of adolescent police stops for mothers. Though there are differences in the vicarious consequences of adolescent police stops based on mothers' emotional support, emotional support does not completely attenuate the deleterious mental health consequences. That is, even mothers with emotional support experience increased depression and anxiety when their adolescent experiences a police stop. But the smaller association between adolescent police stops and mothers' mental health in the presence of emotional support is consistent with the stress process perspective that highlights the buffering role of emotional support (Thoits 1982, 2010). Having someone to confide in about worries stemming from adolescent police exposure may help mothers cope with the negative consequences stemming from the police stop (Thoits 2010).

Taken together, these results substantiate the stress process perspective but also provide ideas about opportunities for extending this perspective. First, though results for the full sample demonstrate that mothers' reports of adolescent police stops are similarly associated with mothers' depression and anxiety, the subgroup analyses occasionally show substantively different findings across the two outcome variables. For example, the magnitude of the association between adolescent police stops and mothers' depression is larger among mothers who have not experienced their own police stop and the magnitude of the association between adolescent police stops and mothers' anxiety is larger among mothers who have experienced

their own police stop. The stress process perspective is non-specific in nature, which makes it widely applicable, but future research may more precisely consider the antecedents of different mental health conditions (Thoits 2010). Second, the findings about the contingent consequences of adolescent police stops highlight the need to incorporate criminal justice contact as a marker of vulnerability in the stress process perspective (in addition to more commonly considered markers of social position such as race/ethnicity and social class). Forms of criminal justice contact, especially incarceration, have been conceptualized as a stressor (e.g., Massoglia 2008; Turney 2014; Sugie and Turney 2017), but these findings suggest that criminal justice contact may also shape responses to stressors. Third, the stress process perspective is often employed to examine vicarious effects (i.e., how a stressor has proliferating consequences for those connected to the individual exposed to the stressor [Pearlin et al. 2005]) or contingent effects (i.e., how exposure to a stressor is differentially consequential for individuals [Sugie and Turney 2017]). This research suggests that stressors may have intersecting vicarious and contingent consequences, and future research should continue to explore these connections.

Limitations

The Fragile Families data provide an excellent opportunity for investigating the vicarious and contingent consequences of adolescent police stops, but attributes of the data should be kept in mind when interpreting the findings. First, the sample excludes adolescents born in rural areas, and adolescent police stops may be differentially consequential in urban and rural areas (Eason 2017). Also, though fathers are interviewed during the first five waves of data collection, only the primary caregiver is interviewed at the 15-year survey. Primary caregivers are mostly mothers and, therefore, the data preclude an examination of the relationship between adolescent

police stops and fathers' mental health. Second, the key variables were measured during a time of high-profile police violence in the United States, which may accentuate the observed relationship between adolescent police stops and mothers' mental health. Future research should examine this relationship across time. Third, mothers are only asked to report on police stops of the focal child. It is possible that mothers have other children who experienced police contact, suggesting the results presented provide a conservative estimate of the association between adolescent police stops and mothers' mental health. Finally, these observational data preclude causal conclusions. However, I strengthen causal inference by adjusting for an array of characteristics associated with police stops, including lagged dependent variables and potentially endogenous characteristics of adolescents (including other forms of criminal justice contact); by conducting a series of robustness checks; and by estimating propensity score matching models. It seems unlikely an unobserved variable, one not correlated with the control variables included in the analyses, would render the consistently observed and robust relationship between adolescent police stops and mothers' mental health spurious. Future research, using data that includes time-varying measures of adolescent police stops and mothers' mental health, should consider analytic strategies—such as individual-level fixed effects models—that could account for stable unobserved characteristics.

Conclusions

The current study, situated in the stress process perspective, documents that adolescent police exposure is a stressor with deleterious consequences for mental health. This stressor is both vicarious, affecting the mental health of mothers of adolescents exposed to the stop, and contingent, differentially affecting mothers' mental health based on her prior criminal justice

exposure and her available emotional support. This study extends prior research in two primary ways. First, this study highlights that the criminal justice system has durable adverse consequences for the mothers of adolescents entangled in the system. This complements and extends existing research that examines the individual-level health consequences of police stops (e.g., Baćak and Nowotny 2018; Geller et al. 2014; Sewell and Jefferson 2016) and existing research that examines the intergenerational consequences of parental criminal justice contact (specifically, incarceration) for offspring health and wellbeing (e.g., Foster and Hagan 2013; Turney 2014). Second, this study highlights the consequential nature of police stops. Police stops are the most common form of criminal justice contact and are especially common experiences among individuals of color and individuals living in economically disadvantaged and highly surveilled neighborhoods. Taken together, the results suggest that by both overlooking the consequences of police stops and by overlooking the consequences for the parents of those enmeshed in the criminal justice system, prior research underestimates the role of the criminal justice system in structuring health inequality.

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Figure 1. Frequencies of Mothers' Reports of Adolescent Police Stops, by Mothers' Prior

Exposure to the Criminal Justice System
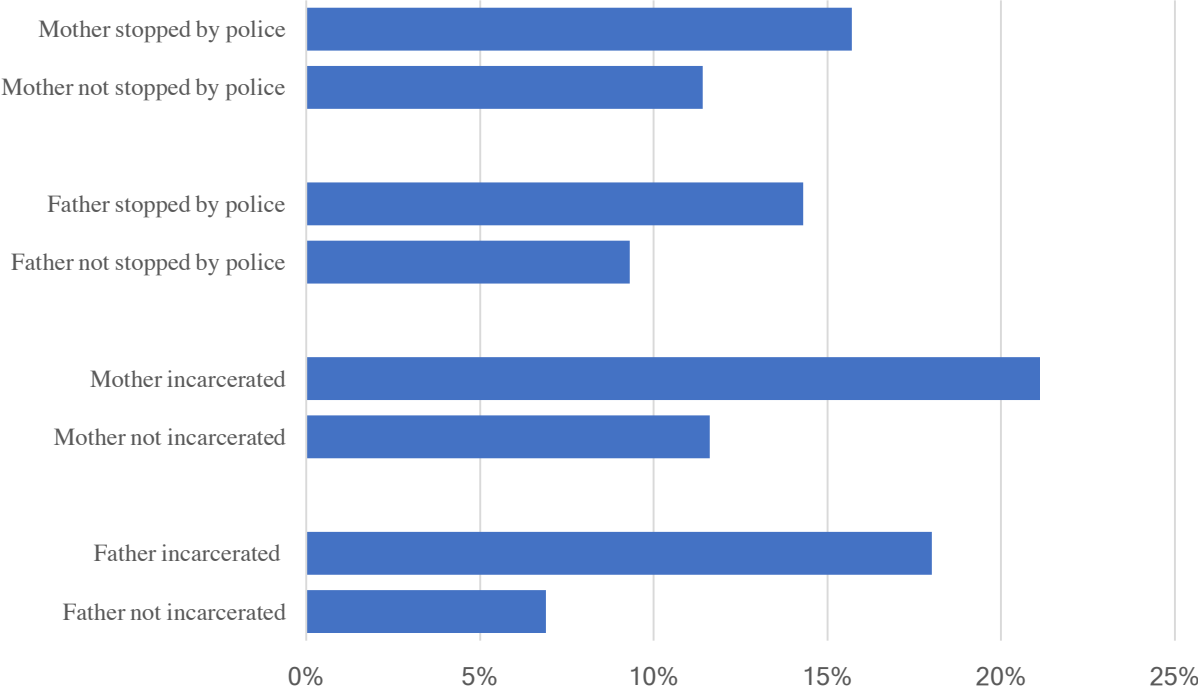
Table 1. Descriptive Statistics of Variables, for Full Sample and by Mothers' Reports of Adolescent Police Stops

	Full sample		Mothers' Reports of Adolescent Police Stops			
			Police stop		No police stop	
	% or M	(S.D.)	% or M	(S.D.)	% or M	(S.D.)
Key Variables						
Mother depression (y15)	17.3%		30.1%		15.5%	***
Mother anxiety (y15)	5.7%		12.8%		4.7%	***
Adolescent stopped by police (y15)	12.3%		100.0%		0.0%	
Mother Characteristics						
Race/ethnicity (b)						
White (non-Hispanic)	20.9%		16.3%		21.5%	*
Black (non-Hispanic)	50.6%		61.2%		49.1%	***
Hispanic	24.9%		19.4%		25.6%	**
Other race (non-Hispanic)	3.7%		3.2%		3.8%	
Foreign-born (b)	14.2%		6.1%		15.3%	***
Age (y9)	34.490	(6.047)	32.655	(5.363)	34.747	(6.093) ***
Lived with both biological parents (b)	42.8%		28.8%		44.8%	***
Relationship with adolescent's father (y9)						
Married	31.3%		17.1%		33.3%	***
Cohabiting	9.2%		9.6%		9.2%	
Not residential	59.5%		73.3%		57.6%	***
Repartnered (y9)	33.7%		40.2%		32.8%	**
Relationship quality (y9)	2.796	(1.473)	2.328	(1.404)	2.861	(1.471) ***
Number of children in household (y9)	2.715	(1.313)	2.957	(1.428)	2.681	(1.292) ***
Educational attainment (y9)						
Less than high school	20.6%		24.5%		20.1%	*
High school diploma or GED	17.8%		22.1%		17.2%	*
More than high school	61.5%		53.4%		62.7%	***
Employed (y9)	64.0%		59.4%		64.6%	^
Income-to-poverty ratio (y9)	2.081	(2.310)	1.435	(1.449)	2.172	(2.392) ***
Material hardship (y9)	1.464	(1.842)	2.015	(2.025)	1.386	(1.801) ***
Parenting stress (y9)	2.035	(0.686)	2.252	(0.723)	2.004	(0.675) ***
Fair or poor health (y9)	16.1%		22.8%		15.1%	***
Heavy drinking (y9)	8.5%		15.0%		7.6%	***
Illicit drug use (y9)	5.7%		7.6%		5.4%	*
Neighborhood disadvantage (y9)	0.000	(1.000)	0.154	(1.054)	-0.022	(0.990) ***
Neighborhood percent white (y9)	37.1%		32.5%		37.7%	**
Neighborhood percent black (y9)	35.3%		40.0%		34.7%	**
Neighborhood percent Hispanic (y9)	20.4%		21.3%		20.3%	
Neighborhood social control (y9)	3.203	(0.834)	3.174	(0.876)	3.207	(0.828)
Neighborhood social cohesion (y9)	2.773	(0.483)	2.713	(0.516)	2.781	(0.478) *
Cognitive skills (y3)	6.814	(2.665)	6.662	(2.493)	6.835	(2.688)
Impulsivity (y3)	2.009	(0.605)	2.120	(0.628)	1.994	(0.600) ***
Ever stopped by police (y3, y5, y9)	20.4%		26.1%		19.6%	**
Ever incarcerated (y1, y3, y5, y9)	7.3%		12.6%		6.6%	***
Depression, lagged (y9)	16.1%		23.5%		15.1%	***
Anxiety, lagged (y3)	3.9%		5.9%		3.6%	*
Emotional support (y15)	89.6%		88.3%		89.8%	
Father Characteristics						
Race/ethnicity (b)						
White (non-Hispanic)	18.5%		10.7%		19.6%	***
Black (non-Hispanic)	53.0%		67.0%		51.0%	***

Table 1 (continued)

Hispanic	24.8%		19.0%		25.6%		**
Other race (non-Hispanic)	3.7%		3.2%		3.8%		
Foreign-born (b)	15.5%		7.8%		16.6%		***
Age (y9)	36.894	(7.143)	35.051	(6.416)	37.153	(7.202)	***
Lived with both biological parents (b)	44.3%		26.1%		45.5%		*
Repartnered (y9)	3.7%		3.7%		3.7%		
Relationship quality (y9)	3.206	(1.377)	2.836	(1.387)	3.259	(1.367)	***
Number of children in household (y9)	0.982	(1.380)	1.250	(0.392)	0.945	(1.375)	**
Educational attainment (y9)							
Less than high school	25.8%		34.0%		24.6%		***
High school diploma or GED	29.7%		30.9%		29.5%		
More than high school	44.6%		35.1%		45.9%		***
Employed (y9)	71.2%		58.9%		73.0%		***
Income-to-poverty ratio (y9)	2.592	(2.832)	1.834	(2.189)	2.699	(2.895)	***
Material hardship (y9)	1.400	(1.923)	1.752	(2.044)	1.350	(1.901)	***
Parenting stress (y9)	1.909	(0.695)	2.062	(0.744)	1.888	(0.685)	***
Fair or poor health (y9)	14.6%		18.4%		14.0%		^
Heavy drinking (y9)	27.2%		29.1%		27.0%		*
Illicit drug use (y9)	13.6%		21.4%		12.5%		***
Neighborhood disadvantage (y9)	0.000	(1.000)	0.172	(0.958)	-0.021	(1.004)	**
Neighborhood percent white (y9)	35.7%		29.7%		36.6%		**
Neighborhood percent black (y9)	37.1%		43.4%		36.2%		**
Neighborhood percent Hispanic (y9)	20.1%		20.5%		20.0%		
Cognitive skills (y3)	6.436	(2.718)	6.410	(2.610)	6.440	(2.773)	
Impulsivity (y1)	1.998	(0.664)	2.076	(0.720)	1.987	(0.655)	***
Ever stopped by police (y1, y3, y5, y9)	59.4%		69.3%		58.1%		***
Ever incarcerated (b, y1, y3, y5, y9)	48.6%		71.2%		45.5%		***
Adolescent Characteristics							
Male (b)	51.5%		70.0%		48.9%		***
Age (y15)	15.569	(0.756)	15.796	(0.828)	15.538	(0.740)	***
Low birth weight (b)	9.1%		10.1%		9.0%		
Delinquency (y9)	1.239	(1.787)	1.995	(2.185)	1.132	(1.697)	***
Impulsivity (y15)	2.459	(0.699)	2.697	(0.683)	2.425	(0.695)	***
Peer delinquency (y15)	1.193	(0.298)	1.338	(0.392)	1.173	(0.276)	***
Police officer regularly stationed at school (y15)	79.8%		81.8%		79.5%		
Ever smoked (y15)	4.7%		14.7%		3.3%		***
Ever drank alcohol without parents (y15)	16.5%		31.7%		14.4%		***
Ever used marijuana or other drug (y15)	21.3%		47.9%		17.6%		***
Ever arrested (y15)	5.8%		37.1%		1.4%		***
Ever incarcerated (y15)	2.9%		19.6%		0.5%		***
N	3,063		377		2,686		

Notes: b = measured at baseline, y1 = measured at 1-year survey, y3 = measured at 3-year survey, y5 = measured at 5-year survey, y9 = measured at 9-year survey, y15 = measured at 15-year survey. Asterisks indicate statistically significant differences between mothers of adolescents who experience a police stop and mothers of adolescents who do not experience a police stop. ^ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 2. Logistic Regression Models Estimating Mothers' Depression as a Function of Mothers' Reports of Adolescent Police Stops

	Model 1			Model 2			Model 3			Model 4		
	bivariate			*+ controls*			*+ lagged depression*			*+ endogenous characteristics*		
Adolescent stopped by police	0.851	(0.162)	***	0.506	(0.163)	**	0.521	(0.155)	**	0.527	(0.186)	**
Mother Characteristics												
Race/ethnicity (reference = White [non-Hispanic])												
Black (non-Hispanic)				0.028	(0.298)		-0.042	(0.306)		-0.038	(0.299)	
Hispanic				-0.029	(0.330)		-0.029	(0.327)		-0.027	(0.326)	
Other race (non-Hispanic)				-0.347	(0.305)		-0.363	(0.334)		-0.347	(0.339)	
Foreign-born				-0.212	(0.230)		-0.238	(0.255)		-0.234	(0.254)	
Age				-0.017	(0.012)		-0.020	(0.014)		-0.019	(0.015)	
Lived with both biological parents				-0.032	(0.112)		0.014	(0.119)		0.016	(0.121)	
Relationship with adolescent's father (reference = married)												
Cohabiting				0.032	(0.229)		0.091	(0.233)		0.091	(0.230)	
Not residential				-0.035	(0.200)		-0.013	(0.192)		-0.017	(0.196)	
Repartnered				0.016	(0.168)		0.111	(0.175)		0.104	(0.177)	
Relationship quality				-0.043	(0.076)		-0.039	(0.076)		-0.039	(0.074)	
Number of children in household				0.079	(0.044)	^	0.086	(0.046)		0.080	(0.046)	^
Educational attainment (reference = less than high school)												
High school diploma or GED				0.073	(0.131)		0.118	(0.134)		0.114	(0.132)	
More than high school				0.143	(0.106)		0.185	(0.109)	^	0.183	(0.111)	^
Employed				-0.215	(0.101)	*	-0.130	(0.107)		-0.137	(0.106)	
Income-to-poverty ratio				0.016	(0.026)		0.017	(0.027)		0.019	(0.027)	
Material hardship				0.140	(0.026)	***	0.010	(0.028)	**	0.093	(0.027)	**
Parenting stress				0.202	(0.070)	**	0.115	(0.071)		0.113	(0.072)	
Fair or poor health				0.591	(0.144)	***	0.474	(0.157)	**	0.472	(0.159)	**
Heavy drinking				0.052	(0.164)		-0.005	(0.175)		-0.013	(0.178)	
Illicit drug use				0.222	(0.156)		-0.044	(0.171)		-0.039	(0.170)	
Neighborhood disadvantage				-0.051	(0.074)		-0.054	(0.071)		-0.060	(0.072)	
Neighborhood percent white				0.019	(0.009)	*	0.018	(0.009)	^	0.018	(0.009)	^
Neighborhood percent black				0.015	(0.009)	^	0.015	(0.009)	^	0.015	(0.009)	^
Neighborhood percent Hispanic				0.014	(0.082)		0.013	(0.010)		0.014	(0.010)	
Neighborhood social control				-0.069	(0.082)		-0.060	(0.080)		-0.082	(0.082)	
Neighborhood social cohesion				-0.218	(0.145)		-0.180	(0.148)		-0.187	(0.148)	
Cognitive skills				-0.003	(0.024)		-0.018	(0.026)		-0.018	(0.025)	
Impulsivity				0.201	(0.092)	*	0.168	(0.091)	^	0.166	(0.094)	^
Ever stopped by police				0.010	(0.078)		-0.045	(0.082)		-0.042	(0.081)	
Ever incarcerated				0.072	(0.184)		0.111	(0.210)		0.111	(0.212)	
Depression, lagged							1.235	(0.138)	***	1.234	(0.136)	***
Father Characteristics												
Race/ethnicity (reference = White [non-Hispanic])												
Black (non-Hispanic)				-0.214	(0.267)		-0.125	(0.290)		-0.118	(0.287)	
Hispanic				-0.216	(0.299)		-0.174	(0.304)		-0.179	(0.299)	
Other race (non-Hispanic)				0.228	(0.275)		0.387	(0.288)		0.384	(0.289)	
Foreign-born				-0.275	(0.215)		-0.253	(0.222)		-0.254	(0.225)	
Age				0.016	(0.010)		0.016	(0.011)		0.015	(0.011)	
Lived with both biological parents				-0.005	(0.110)		0.032	(0.115)		0.035	(0.117)	
Repartnered				0.119	(0.354)		0.108	(0.360)		0.112	(0.361)	
Relationship quality				-0.065	(0.070)		-0.036	(0.073)		-0.037	(0.073)	
Number of children in household				-0.034	(0.057)		-0.031	(0.062)		-0.030	(0.062)	
Educational attainment (reference = less than high school)												
High school diploma or GED				-0.004	(0.109)		-0.010	(0.124)		-0.009	(0.123)	
More than high school				0.004	(0.142)		-0.031	(0.150)		-0.024	(0.149)	
Employed				0.143	(0.147)		0.173	(0.143)		0.167	(0.145)	
Income-to-poverty ratio				-0.037	(0.032)		-0.036	(0.034)		-0.036	(0.034)	

Table 2 (continued)

	Coef.	SE	Coef.	SE	Coef.	SE
Material hardship	-0.049	(0.026) ^	-0.040	(0.028)	-0.040	(0.029)
Parenting stress	0.035	(0.086)	0.038	(0.084)	0.037	(0.084)
Fair or poor health	0.061	(0.162)	0.090	(0.163)	0.094	(0.164)
Heavy drinking	0.018	(0.136)	0.001	(0.145)	0.001	(0.145)
Illicit drug use	-0.048	(0.194)	-0.025	(0.209)	-0.031	(0.211)
Neighborhood disadvantage	0.084	(0.098)	0.085	(0.094)	0.085	(0.094)
Neighborhood percent white	-0.011	(0.011)	-0.009	(0.011)	-0.009	(0.011)
Neighborhood percent black	-0.015	(0.011)	-0.011	(0.011)	-0.011	(0.011)
Neighborhood percent Hispanic	-0.009	(0.012)	-0.008	(0.012)	-0.008	(0.012)
Cognitive skills	-0.001	(0.023)	0.000	(0.023)	-0.001	(0.024)
Impulsivity	0.091	(0.093)	0.079	(0.091)	0.082	(0.092)
Ever stopped by police	0.048	(0.107)	0.025	(0.117)	0.028	(0.117)
Ever incarcerated	0.226	(0.095) *	0.217	(0.099) *	0.207	(0.097) *
Adolescent Characteristics						
Male	-0.017	(0.093)	-0.034	(0.096)	-0.032	(0.092)
Age	-0.028	(0.063)	-0.040	(0.054)	-0.049	(0.058)
Low birth weight	-0.093	(0.194)	-0.126	(0.185)	-0.119	(0.188)
Delinquency	0.031	(0.038)	0.025	(0.038) ^	0.023	(0.039)
Impulsivity	0.134	(0.074) ^	0.128	(0.071) ***	0.114	(0.077)
Peer delinquency					0.076	(0.199)
Police officer regularly stationed at school					0.069	(0.104)
Ever smoked					0.273	(0.233)
Ever drank alcohol without parents					-0.077	(0.151)
Ever used marijuana or other drug					0.044	(0.128)
Ever arrested					0.026	(0.291)
Ever incarcerated					-0.288	(0.298)
Log likelihood	-1,389		-1,273		-1,223	-1,221
Constant	-1.695		-2.323		-2.367	-2.359
N	3,063		3,063		3,063	3,063

Notes: All models include city fixed-effects. ^ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 3. Logistic Regression Models Estimating Mothers' Anxiety as a Function of Mothers' Reports of Adolescent Police Stops

	Model 1			Model 2			Model 3			Model 4		
	bivariate			*+ controls*			*+ lagged anxiety*			*+ endogenous characteristics*		
Adolescent stopped by police	1.092	(0.181)	***	0.702	(0.185)	***	0.689	(0.175)	***	0.668	(0.231)	**
Mother Characteristics												
Race/ethnicity (reference = White [non-Hispanic])												
Black (non-Hispanic)				-0.101	(0.363)		-0.105	(0.385)		-0.096	(0.379)	
Hispanic				-0.014	(0.401)		-0.026	(0.421)		-0.013	(0.435)	
Other race (non-Hispanic)				-0.257	(0.557)		-0.351	(0.580)		-0.348	(0.580)	
Foreign-born				-0.086	(0.463)		-0.053	(0.466)		-0.121	(0.497)	
Age				0.007	(0.021)		0.002	(0.022)		0.001	(0.022)	
Lived with both biological parents				-0.069	(0.154)		-0.077	(0.154)		-0.057	(0.143)	
Relationship with adolescent's father (reference = married)												
Cohabiting				-0.107	(0.311)		-0.161	(0.326)		-0.143	(0.333)	
Not residential				-0.280	(0.328)		-0.290	(0.346)		-0.284	(0.358)	
Repartnered				0.067	(0.187)		0.038	(0.190)		0.050	(0.189)	
Relationship quality				0.139	(0.109)		0.156	(0.107)		0.154	(0.105)	
Number of children in household				-0.001	(0.059)		0.011	(0.061)		0.009	(0.063)	
Educational attainment (reference = less than high school)												
High school diploma or GED				-0.130	(0.235)		-0.098	(0.244)		-0.084	(0.242)	
More than high school				0.057	(0.197)		0.053	(0.210)		0.037	(0.210)	
Employed				-0.838	(0.184)	***	-0.828	(0.187)	***	-0.819	(0.192)	***
Income-to-poverty ratio				-0.071	(0.082)		-0.064	(0.080)		-0.069	(0.079)	
Material hardship				0.140	(0.049)	**	0.133	(0.051)	**	0.134	(0.050)	**
Parenting stress				0.374	(0.123)	**	0.364	(0.124)	**	0.376	(0.115)	**
Fair or poor health				0.629	(0.169)	***	0.563	(0.165)	**	0.571	(0.171)	**
Heavy drinking				0.389	(0.187)	*	0.373	(0.189)	*	0.349	(0.200)	^
Illicit drug use				0.026	(0.345)		-0.031	(0.360)		-0.061	(0.353)	
Neighborhood disadvantage				-0.092	(0.114)		-0.102	(0.119)		-0.112	(0.118)	
Neighborhood percent white				0.007	(0.012)		0.006	(0.012)		0.006	(0.012)	
Neighborhood percent black				0.005	(0.013)		0.005	(0.013)		0.006	(0.013)	
Neighborhood percent Hispanic				0.000	(0.012)		0.000	(0.012)		0.000	(0.012)	
Neighborhood social control				-0.039	(0.132)		-0.042	(0.136)		-0.049	(0.144)	
Neighborhood social cohesion				-0.082	(0.210)		-0.067	(0.219)		-0.040	(0.218)	
Cognitive skills				0.006	(0.039)		0.003	(0.040)		0.003	(0.040)	
Impulsivity				0.293	(0.145)	*	0.251	(0.137)	^	0.250	(0.138)	^
Ever stopped by police				0.133	(0.205)		0.062	(0.211)		0.055	(0.214)	
Ever incarcerated				-0.293	(0.328)		-0.245	(0.327)		-0.232	(0.330)	
Anxiety, lagged							1.138	(0.229)	***	1.139	(0.226)	***
Father Characteristics												
Race/ethnicity (reference = White [non-Hispanic])												
Black (non-Hispanic)				-0.121	(0.476)		-0.077	(0.473)		-0.107	(0.475)	
Hispanic				0.063	(0.491)		0.060	(0.460)		0.053	(0.456)	
Other race (non-Hispanic)				0.270	(0.511)		0.318	(0.501)		0.323	(0.498)	
Foreign-born				-0.344	(0.433)		-0.348	(0.439)		-0.345	(0.451)	
Age				0.016	(0.016)		0.017	(0.016)		0.018	(0.017)	
Lived with both biological parents				-0.002	(0.213)		0.010	(0.214)		0.011	(0.221)	
Repartnered				-0.237	(0.445)		-0.326	(0.431)		-0.267	(0.445)	
Relationship quality				-0.114	(0.092)		-0.116	(0.089)		-0.117	(0.092)	
Number of children in household				0.030	(0.102)		0.044	(0.103)		0.045	(0.104)	
Educational attainment (reference = less than high school)												
High school diploma or GED				0.043	(0.198)		-0.015	(0.190)		-0.003	(0.181)	
More than high school				-0.247	(0.231)		-0.304	(0.232)		-0.304	(0.237)	
Employed				0.064	(0.274)		0.074	(0.273)		0.074	(0.274)	
Income-to-poverty ratio				-0.027	(0.058)		-0.020	(0.058)		-0.024	(0.059)	

Table 3 (continued)

Material hardship		-0.053	(0.055)		-0.046	(0.057)		-0.046	(0.056)	
Parenting stress		-0.100	(0.164)		-0.094	(0.168)		-0.099	(0.167)	
Fair or poor health		0.063	(0.257)		0.081	(0.265)		0.091	(0.265)	
Heavy drinking		0.233	(0.239)		0.234	(0.246)		0.245	(0.245)	
Illicit drug use		-0.206	(0.275)		-0.200	(0.276)		-0.188	(0.274)	
Neighborhood disadvantage		0.073	(0.183)		0.082	(0.189)		0.078	(0.188)	
Neighborhood percent white		0.002	(0.014)		0.000	(0.014)		0.002	(0.134)	
Neighborhood percent black		0.002	(0.015)		0.000	(0.015)		0.001	(0.015)	
Neighborhood percent Hispanic		0.004	(0.016)		0.002	(0.014)		0.004	(0.016)	
Cognitive skills		0.026	(0.038)		0.023	(0.037)		0.018	(0.038)	
Impulsivity		0.016	(0.154)		0.026	(0.151)		0.023	(0.151)	
Ever stopped by police		0.059	(0.209)		0.031	(0.216)		0.023	(0.218)	
Ever incarcerated		0.712	(0.206)	**	0.709	(0.200)	***	0.713	(0.191)	***

Adolescent Characteristics

Male		0.199	(0.181)		0.176	(0.180)		0.199	(0.178)	
Age		0.102	(0.127)		0.124	(0.119)		0.103	(0.118)	
Low birth weight		-0.069	(0.367)		-0.043	(0.356)		0.000	(0.365)	
Delinquency		-0.044	(0.056)		-0.039	(0.055)		0.044	(0.058)	
Impulsivity		0.101	(0.127)		0.117	(0.124)		0.059	(0.116)	
Peer delinquency								0.556	(0.362)	
Police officer regularly stationed at school								-0.390	(0.192)	^
Ever smoked								-0.282	(0.385)	
Ever drank alcohol without parents								0.048	(0.316)	
Ever used marijuana or other drug								-0.066	(0.255)	
Ever arrested								0.264	(0.353)	
Ever incarcerated								-0.577	(0.491)	

Log likelihood	-654	-574	-567	-564
Constant	-3.007	-7.417	-7.455	-7.565
N	3,063	3,063	3,063	3,063

Notes: All models include city fixed-effects. ^ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 4. Logistic Regression Models Estimating Mothers' Depression and Anxiety, with Variations on Adolescent Stop Measure

	Depression			Anxiety		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
	Number of stops	*Intrusion index*	*Consequences index*	*Number of stops*	*Intrusion index*	*Consequences index*
Number of stops	0.043 (0.016) **			0.060 (0.027) *		
Intrusion index		0.051 (0.054)			0.269 (0.095) **	
Stigma index			-0.062 (0.051)			0.027 (0.077)
Log likelihood	-326	-344	-350	-161	-166	-170
Constant	-6.194	-5.681	-5.646	-1.617	-0.280	-1.391
N	767	767	767	767	767	767

Notes: Models adjust for all control variables in Model 3 of Tables 2 and 3. All models include city fixed-effects. * $p < .05$, ** $p < .01$.

Table 5. Logistic Regression Models Estimating Mothers' Depression and Anxiety as a Function of Mothers' Reports of Adolescent Police Stops, Considering Variation by Mothers' Prior Exposure to Criminal Justice Contact

	Mothers' depression			Mothers' anxiety		
Panel A. Mother prior police stops						
Mother stopped (n = 624)	0.182	(0.334)		1.515	(0.344)	***
Mother not stopped (n = 2,439)	0.680	(0.201)	**	0.539	(0.250)	*
Panel B. Father prior police stops						
Father stopped (n = 1,813)	0.449	(0.156)	**	0.933	(0.191)	***
Father not stopped (n = 1,250)	1.081	(0.357)	**	-0.144	(0.520)	
Panel C. Mother prior incarceration						
Mother incarcerated (n = 222)	1.418	(1.147)		---	---	
Mother not incarcerated (n = 2,841)	0.372	(0.181)	*	0.608	(0.211)	**
Panel D. Father prior incarceration						
Father incarcerated (n = 1,490)	0.599	(0.186)	**	1.012	(0.236)	***
Father not incarcerated (n = 1,573)	0.448	(0.402)		-1.158	(0.667)	^

Notes: Coefficient for "adolescent stopped by police" presented. Models adjust for all control variables in Model 3 of Tables 2 and 3. All models include city fixed-effects. ^ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 6. Logistic Regression Models Estimating Mothers' Depression and Anxiety as a Function of Mothers' Reports of Adolescent Police Stops, Considering Variation by Emotional Support

	Mothers' depression		Mothers' anxiety	
Emotional support (n = 2,745)	0.428	(0.158) **	0.509	(0.223) *
No emotional support (n = 318)	1.550	(0.639) *	1.806	(1.075) ^

Notes: Coefficient for "adolescent stopped by police" presented. Models adjust for all control variables in Model 3 of Tables 2 and 3. All models include city fixed-effects. ^ $p < .10$, * $p < .05$, ** $p < .01$.

Appendix Table 1. Logistic Regression Model Estimating Mothers' Reports of Adolescent Police Stops

	b	(S.E.)	
Mother Characteristics			
Race/ethnicity (reference = White [non-Hispanic])			
Black (non-Hispanic)	-0.579	(2.920)	
Hispanic	-0.399	(0.305)	
Other race (non-Hispanic)	-0.021	(0.441)	
Foreign-born	-0.244	(0.346)	
Age	-0.018	(0.018)	
Lived with both biological parents	-0.338	(0.144)	*
Relationship with adolescent's father (reference = married)			
Cohabiting	0.034	(0.280)	
Not residential	0.064	(0.247)	
Repartnered	-0.147	(0.161)	
Relationship quality	-0.069	(0.068)	
Number of children in household	0.034	(0.050)	
Educational attainment (reference = less than high school)			
High school diploma or GED	0.302	(0.196)	
More than high school	0.001	(0.177)	
Employed	-0.045	(0.144)	
Income-to-poverty ratio	-0.057	(0.057)	
Material hardship	0.055	(0.042)	
Parenting stress	0.354	(0.098)	***
Fair or poor health	0.143	(0.178)	
Heavy drinking	0.458	(0.195)	*
Illicit drug use	-0.254	(0.266)	
Neighborhood disadvantage	0.054	(0.091)	
Neighborhood percent white	0.021	(0.013)	
Neighborhood percent black	0.016	(0.012)	
Neighborhood percent Hispanic	0.020	(0.012)	
Neighborhood social control	0.137	(0.094)	
Neighborhood social cohesion	-0.054	(0.156)	
Cognitive skills	0.004	(0.027)	
Impulsivity	0.015	(0.112)	
Ever stopped by police	-0.026	(0.156)	
Ever incarcerated	0.278	(0.216)	
Father Characteristics			
Race/ethnicity (reference = White [non-Hispanic])			
Black (non-Hispanic)	0.617	(0.318)	
Hispanic	0.032	(0.339)	
Other race (non-Hispanic)	0.558	(0.441)	
Foreign-born	-0.211	(0.333)	
Age	-0.004	(0.015)	
Lived with both biological parents	0.104	(0.160)	
Repartnered	-0.423	(0.399)	
Relationship quality	-0.005	(0.069)	
Number of children in household	0.167	(0.085)	*
Educational attainment (reference = less than high school)			
High school diploma or GED	-0.319	(0.171)	
More than high school	-0.168	(0.177)	
Employed	-0.203	(0.174)	
Income-to-poverty ratio	-0.001	(0.045)	

Appendix Table 1 (continued)

Material hardship	-0.016	(0.050)	
Parenting stress	0.181	(0.131)	
Fair or poor health	0.097	(0.206)	
Heavy drinking	-0.058	(0.190)	
Illicit drug use	0.174	(0.121)	
Neighborhood disadvantage	-0.020	(0.135)	
Neighborhood percent white	-0.014	(0.015)	
Neighborhood percent black	-0.010	(0.014)	
Neighborhood percent Hispanic	-0.007	(0.013)	
Cognitive skills	0.017	(0.030)	
Impulsivity	-0.105	(0.151)	
Ever stopped by police	0.077	(0.149)	
Ever incarcerated	0.444	(0.155)	**
Adolescent Characteristics			
Male	0.923	(0.134)	***
Age	0.331	(0.103)	**
Low birth weight	0.045	(0.217)	
Delinquency	0.103	(0.034)	**
Impulsivity	0.449	(0.098)	***
Constant	-10.761		
N	3,063		

Note: Model also includes city fixed-effects. * $p < .05$, ** $p < .01$, *** $p < .001$.

Appendix Table 2. Covariate Balance After Matching

	Matched mean			
	E(X) | d = 1	E(X) | d = 0	p	Bias
Mother Characteristics				
Race/ethnicity				
White (non-Hispanic)	0.162	0.159	0.875	0.9
Black (non-Hispanic)	0.611	0.606	0.861	1.1
Hispanic	0.194	0.199	0.885	-1.0
Other race (non-Hispanic)	0.032	0.037	0.718	-2.7
Foreign-born	0.062	0.068	0.733	-2.0
Age	32.655	32.763	0.780	-1.9
Lived with both biological parents	0.291	0.297	0.848	-1.4
Relationship with adolescent's father				
Married	0.172	0.188	0.570	-3.8
Cohabiting	0.096	0.103	0.763	-2.3
Not residential	0.732	0.709	0.493	4.9
Repartnered	0.402	0.390	0.737	2.5
Relationship quality	2.335	2.401	0.526	-4.6
Number of children in household	2.956	2.940	0.841	1.1
Educational attainment				
Less than high school	0.245	0.246	0.884	-0.4
High school diploma or GED	0.220	0.210	0.735	2.6
More than high school	0.535	0.544	0.816	-1.8
Employed	0.594	0.591	0.876	0.7
Income-to-poverty ratio	1.442	1.465	0.844	-1.1
Material hardship	2.006	1.961	0.749	2.3
Parenting stress	2.246	2.227	0.725	2.7
Fair or poor health	0.227	0.230	0.847	-0.8
Heavy drinking	0.148	0.151	0.858	-0.9
Illicit drug use	0.075	0.075	0.825	-0.1
Neighborhood disadvantage	0.155	0.143	0.848	1.2
Neighborhood percent white	32.475	33.104	0.780	-2.0
Neighborhood percent black	40.090	40.180	0.891	-0.2
Neighborhood percent Hispanic	21.291	20.481	0.669	3.2
Neighborhood social control	3.172	3.176	0.895	-0.5
Neighborhood social cohesion	2.714	2.722	0.791	-1.8
Cognitive skills	6.658	6.629	0.854	1.1
Impulsivity	2.115	2.109	0.859	1.0
Ever stopped by police	0.260	0.261	0.896	-0.3
Ever incarcerated	0.126	0.126	0.883	0.1
Father Characteristics				
Race/ethnicity				
White (non-Hispanic)	0.108	0.111	0.919	-0.6
Black (non-Hispanic)	0.668	0.658	0.773	2.1
Hispanic	0.192	0.199	0.814	-1.7
Other race (non-Hispanic)	0.031	0.032	0.902	-0.6
Foreign-born	0.079	0.082	0.853	-1.0
Age	35.053	35.090	0.888	-0.6
Lived with both biological parents	0.361	0.365	0.849	-0.8
Repartnered	0.037	0.036	0.860	0.3
Relationship quality	2.843	2.881	0.705	-2.8
Number of children in household	1.244	1.257	0.827	-0.9

Appendix Table 2 (continued)

Educational attainment				
Less than high school	0.339	0.321	0.607	3.9
High school diploma or GED	0.308	0.312	0.869	-0.8
More than high school	0.353	0.367	0.693	-2.9
Employed	0.592	0.601	0.802	-2.0
Income-to-poverty ratio	1.842	1.860	0.839	-0.7
Material hardship	1.746	1.721	0.791	1.2
Parenting stress	2.057	2.040	0.746	2.4
Fair or poor health	0.183	0.181	0.838	0.4
Heavy drinking	0.291	0.291	0.870	0.1
Illicit drug use	0.213	0.209	0.817	1.0
Neighborhood disadvantage	0.173	0.170	0.845	0.4
Neighborhood percent white	29.703	30.188	0.807	-1.6
Neighborhood percent black	43.401	43.201	0.872	0.6
Neighborhood percent Hispanic	20.485	20.145	0.840	1.3
Cognitive skills	6.396	6.437	0.819	-1.5
Impulsivity	2.076	2.069	0.818	1.0
Ever stopped by police	0.692	0.679	0.723	2.6
Ever incarcerated	0.710	0.693	0.614	3.6
Adolescent Characteristics				
Male	0.698	0.697	0.934	0.1
Age	15.792	15.784	0.854	1.0
Low birth weight	0.101	0.101	0.890	-0.1
Delinquency	1.964	1.946	0.852	0.9
Impulsivity	2.693	2.686	0.865	1.1

Notes: $E(X) \mid d = 1$ indicates means for treatment group (mothers report adolescent stopped by the police). $E(X) \mid d = 0$ indicates means for control group (mothers report adolescent not stopped by the police). Post-match estimates based on kernel matching.

Appendix Table 3. Propensity Score Matching Models Estimating the Association between Mothers' Reports of Adolescent Police Stops and Mothers' Mental Health

	Unmatched estimates			Matched estimates			Matched estimates (with endogenous characteristics)			Matched estimates (doubly robust)		
Depression	0.851	(0.124)	***	0.475	(0.154)	**	0.412	(0.183)	*	0.550	(0.162)	**
Anxiety	1.092	(0.179)	***	0.570	(0.237)	*	0.558	(0.259)	*	0.788	(0.246)	**

Notes: All estimates are restricted to the region of common support. Standard errors in parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$.

Appendix Table 4. Sensitivity Analysis for the Association between
Mothers' Reports of Adolescent Police Stops and Mothers' Mental
Health (Assuming Overestimation of Mothers' Reports of Adolescent
Police Stops)

Depression		Anxiety	
Gamma (Γ)	*p*	Gamma (Γ)	*p*
1.0	< .001	1.0	< .001
1.1	< .001	1.1	< .001
1.2	< .001	1.2	< .001
1.3	< .001	1.3	< .001
1.4	< .001	1.4	< .001
1.5	< .001	1.5	< .001
1.6	.001	1.6	< .001
1.7	.006	1.7	< .001
1.8	.019	1.8	.002
1.9	.051	1.9	.006
2.0		2.0	.013
2.1		2.1	.026
2.2		2.2	.047
2.3		2.3	.077

Note: P-values exceeding .05 are omitted (unless they were the point
where the relationship became statistically insignificant at the .05
level), which shows where the relationships become statistically
insignificant).