Exploring the "School-to-Prison Pipeline": How School Suspensions Influence Incarceration during Young Adulthood

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Abstract

The "school-to-prison pipeline" references a process in which youth who experience punitive punishment in school are increasingly enmeshed within the criminal justice system. While this metaphor is commonly accepted, few studies have examined the extent to which exclusionary school discipline significantly alters pathways towards incarceration as youth transition into young adulthood. Applying a life-course perspective and leveraging 15 waves of data from the National Longitudinal Survey of Youth 1997, this study examines how school suspensions influence odds of imprisonment during young adulthood. Mixed-effects longitudinal models demonstrate that receiving a suspension increases the odds of incarceration, even after accounting for key covariates including levels of criminal offending. However, results show that repeated suspensions do not appear to confer additional risk of incarceration. Results carry implications for the ways in which school punishment impacts youths' life-course.

Key Words: Suspension, incarceration, life-course, youth, school-to-prison

Introduction

Although mounting scrutiny over school discipline has led to various reform initiatives (see Gregory et al., 2017; Hirschfield, 2018a), the use of punitive and exclusionary punishment practices persists across the United States (Kupchik, 2016; Musu-Gillette et al., 2018). Recent reports from the Department of Education's (2018) Office of Civil Rights reveal that approximately 2.7 million students experienced at least one out-of-school suspension during the 2015-2016 academic year. In fact, estimates suggest that about 1/3rd of all students in the United States will receive at least one suspension by the time they graduate from high school (Shollenberger, 2015). These trends, which have largely increased over the last few decades (Department of Education, 2018), become more salient when considering there have been significant decreases in offending and violence within schools since the late 1980s (Musu-Gillette et al., 2018). Furthermore, research has tied exclusionary practices a host of negative outcomes including lower levels of attendance, self-esteem, academic performance, and graduation as well as higher levels of anxiety, dropout, delinquency, victimization, and arrest (for a thorough overview, see Welsh & Little, 2018).

To compound matters, the current landscape of school discipline extends beyond suspensions to include punitive policies, zero-tolerance practices, and security mechanisms in the form of surveillance systems, drug-sniffing dogs, metal detectors, and school resource officers (Casella, 2006; Kupchik, 2010; Hirschfield, 2008; Musu-Gillette et al., 2018). When taken in sum, this assemblage of punishment practices has been indicted with establishing a "school-to-prison pipeline" (Wald & Losen, 2003; Skiba et al., 2014; for a thorough overview of the metaphor, see Crawley & Hirschfield, 2018). This pipeline refers to a process whereby youth who are punished under "criminalized" disciplinary practices find themselves in contact with the criminal justice system (Hirschfield, 2008; Wald & Losen, 2003; see also Simmons, 2017, p. 4 concept of the "prison school.")

Cast against research applying the life-course perspective, scholars have recently highlighted that school discipline can serve as a "turning point" that negatively affect individuals' future outcomes (Mowen & Brent, 2016). The life-course perspective recognizes that negative turning points – such as, educational snags and criminal justice contact – are aligned with life-course trajectories associated with other negative life outcomes including incarceration, arrest, and future offending (for an overview, see Sampson and Laub, 2005). Given the negative outcomes associated with school discipline (e.g., Kupchik, 2016), it is possible that school punishment may serve as a negative turning point that increases criminal justice contact via incarceration. Highlighting the relationship between school suspensions and negative life outcomes, Crawley and Hirschfield (2018, p. 21) note, "empirical evidence does support a causal connection between school exclusion and arrests as well as between juvenile justice involvement and school dropout" though understanding the specific pathways through which suspensions contribute to incarceration remain relatively unknown.

Overall, despite the knowledge that school discipline contributes to deleterious outcomes for youth and young adults, few studies have examined how school discipline functions as a turning point across time (cf: Mowen & Brent, 2016). Consequently, while the pipeline between school discipline and prison is a commonly accepted metaphor, few studies have directly examined this relationship (Mowen & Brent, 2016; Rosenbaum, 2018; Wolf & Kupchik, 2017). This oversight is particularly notable in light of the wide-spread use of exclusionary school sanctions, their association with well-established negative outcomes, and their potential – at least in theory – to significantly alter the life-course. To address this gap in the literature, the current study adopts a life-course framework and leverages 15 waves of data from the National Longitudinal Survey of Youth 1997 to examine the extent to which school suspensions experienced during adolescence are associated with the odds of incarceration in young adulthood.

Life-Course and the Continuity of Negative Events

Starting in the late 1970s and 1980s, an intellectual resurgence took place within criminology focusing on the longitudinal development of antisocial behavior, juvenile delinquency, and adult crime (Blumstein et al., 1986, 1988; Caspi, 1987; Elder, 1975; Loeber, 1982). During this time, scholars began developing theoretical frameworks to explain the onset, persistence, and desistence of criminal conduct as youth moved into – and through – adulthood (Elder, 1975; Loeber, 1982; Moffitt, 1993; Sampson & Laub, 1993, 1997). As a result, research began focusing on criminogenic and prosocial events influencing criminal pathways over time (Elder, 1985; Laub & Sampson, 2003; Sampson & Laub, 1993). These pivotal life events would later be conceptualized as "turning points" by Sampson and Laub (1993, p. 304) which marked "changes in the life history that separate the past from the present." Serving as catalysts for social and behavioral "transitions," turning points can be either pro- or anti-social. Pro-social turning points – that is, life events promoting criminal desistance – often include a stable marriage, engaged parenthood, gainful employment, academic achievements, and successful military service. Anti-social turning points – or, those events encouraging criminal persistence – frequently include divorce, family instability, unemployment, educational failure, and criminal justice involvement (for an overview, see Sampson & Laub, 2005).

To further explain criminal pathways across time, the life-course perspective borrows Caspi's (1987) concepts of "cumulative continuity" and "interactional continuity." Cumulative continuity refers to the "progressive accumulation" of life consequences while interactional continuity denotes "maintaining responses from others" (Caspi, 1987, p. 313). Within the realm of life-course criminology, these concepts suggest that negative turning points and "maladaptive behaviors" can evoke a durable sequence of reinforcing conditions that increasingly build onto one another as they hinder future outcomes (Sampson & Laub, 1997; see also Elder, 1998; Moffitt, 1993). For Sampson and Laub (1997), this represents a process of "cumulative disadvantage" that

"restricts future options in conventional domains" (p. 21) and is sustained by the "negative structural consequences of criminal offending and official sanctions" (p. 15). Further, Sampson and Laub (1997) contend that the sustained continuity between negative outcomes is intimately linked to four institutions of social control – two of which being schools and state sanctions.

Schools, Discipline, and the "School-to-Prison Pipeline" Metaphor

A review of criminology's theoretical infrastructure demonstrates that schools have long been central institution under examination (Cernkovich & Giordano, 1992; Rocque, Jennings, Piquero, Ozkan, & Farrington, 2017). As such, a sizeable literature highlights the impact of schools and education on crime and criminal justice outcomes. Under the umbrella of life-course criminology, schools have received considerable attention given their potential to influence adolescent's life trajectories. For instance, educational "snags" have been associated with lower levels of academic achievement, occupation stability, and economic mobility as well as amplified levels of juvenile delinquency, adult criminality, criminal justice contact, and incarceration (Bersani & Chappie, 2007; Elder, 1998; Hagan et al., 1996; Jimerson, 1999; Moffitt, 1993; Pettit & Western, 2004; Sampson & Laub, 2003; Thornberry, Moore, & Christenson, 1985). These results indicate that school failure functions as a significant negative turning point within the life-course of youth (Bersani & Chappie, 2007).

More recently, schools have become sites of intense examination given concerns over the negative consequences associated with intensified disciplinary assemblages (see Heitzeg, 2009). National reports and scholarly efforts consistently find that criminal justice-based mechanisms (i.e. surveillance systems, school resource officers, metal detectors, drug sniffing dogs, and notification systems) have become commonplace within the school environment (Casella, 2006; Kupchik, 2010; Nolan, 2012; Musu-Gillette et al., 2018). Further, evidence suggests that more punitive sanctions associated with zero-tolerance policies have structured schools' responses to minor forms of student

misconduct (Advancement Project, 2000; American Psychological Association Zero Tolerance Task Force, 2008; Curran, 2016; Curtis, 2014; Phaneuf, 2009; Noltemeyer et al., 2015; Skiba & Peterson, 2000). More pertinent to this study, the escalation of exclusionary practices – such as in- and out-of-school suspensions and expulsions – have been shown to negatively impact the future outcomes of youth.

In perhaps the most recent systematic and comprehensive review on the subject, Welsh and Little (2018, p. 316) synthesize the existing evidence on how punitive school punishment practices affect students' educational and life outcomes. In their review of 71 peer-reviewed articles published between 1990 and 2018, findings suggest that school suspensions are the most common form of punitive punishment used in schools across the U.S. (Welsh & Little, 2018, p. 335). When examining outcomes associated with exclusionary discipline, Welsh and Little (2018, p. 321) largely find that "…exclusionary discipline is associated with adverse student educational and life outcomes in the short- and long-term." More specifically, their review overwhelmingly indicates that current disciplinary trends are strongly tied to diminished education achievements, lower scores on standardized tests, diminished graduation rates, decreased school attendance, and lower rates of educational matriculation. Further, exclusionary discipline has been found to be positively associated with higher dropout rates, greater levels of grade retention, missed instructional time, and delays in graduation. Perhaps more instructive to the current study, Welsh and Little's (2018) review also highlights that sanctioned youth also experience increased levels of contact with juvenile justice and arrest. Despite these amassed findings, Welsh and Little (2018, p. 335) conclude by stating that "most studies do not have a theoretical framework" when interpreting disciplinary pathways leading to negative outcomes and – as a result – "the effects of school discipline are under theorized." We echo Welsh and Little's (2018) conclusion and, therefore, turn now to a discussion of school discipline from a life-course perspective.

The Life-Course Perspective on School Discipline

The life-course perspective posits that pivotal life experiences can serve as turning points and "transitions" that alter one's life trajectory towards or away from crime as they move into and through adulthood (Elder, 1985; Farrington, 2003; Laub & Sampson, 1993; Sampson & Laub, 2003). Perhaps more importantly, these experiences have the ability to "knife off" (Moffitt, 1993) important opportunity structures and produce a "cumulative" effect (Sampson & Laub, 1997), compounding on one another as they shape criminal pathways.

Recently, researchers have started to view school discipline from the life-course perspective (Mowen & Brent, 2016). For example, Mowen and Brent (2016) found that school suspensions increase odds of arrest and suggest that school discipline can function as a negative turning point that increases contact with the criminal justice system. Additional studies have also shown that school suspensions can increase offending as youth move into young adulthood (Rosembaum, 2018; Wolf & Kupchik, 2017). Although not specifically applying life-course theory, in an analysis of data encompassing 4,665 13-17 year old youth in an urban school district, Cuellar (2015) found that youth who received a school suspension were far more likely to report increases in offending behaviors than youth who were not suspended. As a result, suspended youth were also more likely to have contact with the criminal justice system (e.g., arrest and incarceration). In an additional study, Rosenbaum (2018) used propensity score matching to examine outcomes for 480 youth matched to 1,193 emerging adults. Findings revealed that youth who were suspended were less likely than youth who were not suspended to have graduated high school and were more likely to be arrested or on probation. Rosenbaum's findings – like findings mentioned above – provide further evidence that school suspensions lead to increased criminal justice contact and outcomes. Similarly, using the Add-Health data, Wolf and Kupchik (2017) show that suspended youth reported much greater levels of offending than non-suspended youth in emerging adulthood. Again, these studies

seemingly highlight the ability for school suspensions to alter outcomes later in life and thus, function as an important turning point in ones' life-course (see Kupchik & Catlaw, 2015).

Despite these important studies, from the life-course perspective, it remains far less clear how school discipline affects youth's trajectories across time as existing studies tend only to use two waves of data (e.g., Rosenbaum, 2018; Wolf & Kupchik, 2017), or rely on data during the timeframe when youth are enrolled in school (e.g., Mowen & Brent, 2016). Yet, the "school-to-prison pipeline" describes a process of many years whereby youth are placed at a greater risk of incarceration even as they move into, and through, young adulthood. Thus, research is needed that situates exclusionary discipline within the life-course framework to examine its impact on trajectories as men and women move into adulthood while simultaneously documenting the specific mechanisms that drive this pipeline. This need raises attention to the goals of the current study.

Current Study

The primary aim of the current study is to examine how school suspensions experiences in middle and high school relate to incarceration as youth transition into young adulthood. To accomplish this, we establish three goals to guide the present investigation. The first goal of this study is to broadly examine the relationship between school suspension and incarceration young adulthood. Specifically, we examine how the share of men and women who are incarcerated during their young adult years differs for those who were suspended during middle or high school, compared to those who never experienced a suspension.

Next, we investigate the "school-to-prison pipeline" by moving into the multivariate framework to examine the extent to which suspension functions as turning point towards incarceration over time, net the effect of key covariates such as offending and race/ethnicity. Largely reflecting the literature reviewed above, we expect that young adults who experienced a

suspension during grades 7 through 12 will be placed at significantly higher odds of incarceration, even after accounting for levels of delinquency and offending.

Finally, drawing from the concept of *cumulative disadvantage*, we then focus only on those who reported receiving a suspension to examine the extent to which the total number of suspensions received relates to incarceration throughout young adulthood. Within this subgroup, we expect that a greater number of suspensions will relate to increasingly greater odds of incarceration across time, thus demonstrating a cumulative effect of suspension on incarceration.

Data & Methods

Data

To explore the relationship between school suspension and incarceration, we use the first 15 rounds of the National Longitudinal Survey of Youth 1997 (NLSY-97). Sponsored by the Bureau of Labor Statistics, the NLSY-97 collects information on a variety of topics including the educational and employment outcomes of adolescents as they transitioned into adulthood. The initial sample consisted of 6,748 nationally representative respondents who were between the ages of 12 and 16 in 1997 (born between 1980 and 1984), as well as an oversample of 2,236 Black and Hispanic adolescents, resulting in an initial sample size of 8,984 respondents. Yearly interviews were conducted for the first 15 rounds (1997-2011), with the survey switching to a biennial design after 2011. Although the NLSY-97 suffers from some attrition, more than 80% of the original sample is retained during the first 15 rounds of the survey. The NLSY-97's longitudinal nature allows us to observe and control for the within- and between-person characteristics and experiences throughout their teenage years and as they transition into adulthood. Being able to observe such indicators is crucial when studying the transition from adolescence to adulthood as one's characteristics and experiences in adolescence can lead to varying outcomes in later life (Elder, 1998; Johnson, Crosnoe, & Elder, 2011; Macmillan & Hagan, 2004).

Dependent Measure: Incarceration

The dependent measure in this study is incarceration. The NLSY-97 provides information on respondent's incarceration status during each wave of the survey. Using this information, we created a time-varying dichotomous measure representing whether the respondents experienced an incarceration during each year from ages 18 to 26. Overall, about 1.5% of the sample reported being incarcerated at any given wave, though this does significantly vary within individuals across time (within-person standard deviation = 0.092).

** Table 1 About Here **

Focal Independent Measure: School Suspensions

Suspension status experience during the 7th through 12th grades serves as the independent variable. To capture this measure, we draw on data from two questions in the first round of the NLSY-97 that asked: "Have you ever been suspended from school?" and "In what grade(s) did this happen?" Similar questions were asked during subsequent rounds: "Were you suspended from school since [the last interview]?" and "In what grades did this happen?" Using responses to these questions, we created two measures of suspension experiences. The first measure represents individuals who were *ever suspended* during grades 7 through 12 as a dichotomous measure (1 = ever suspended, 0 = never suspended). Overall, about 34.5% of the sample reported receiving a suspension sometime during their time in school. The second measure captures the total number of grades in which respondents reported receiving a suspension. Among those who were ever suspended, respondents experienced a suspension in 1.53 grades on average, with a standard deviation of .80, and a range from 1 (suspended in one grade) to 6 (suspended in all grades).

Control Measures

Demographic Controls

An array of time-variant and -invariant control measures are included in the multivariate analyses. We begin by including a variety of demographic indicators associated with suspension and incarceration. Age, closely linked to both offending and incarceration, is included as a time invariant measure. During the first interview, respondents were 14.8 years old on average, with a standard deviation of about 1.44 years and range from 12.17 to 18.25. We create a measure representing the square of respondent's age to capture the nonlinear nature of the age-crime relation (Hirschi & Gottfredson, 1983)[2]. The sample is about 49.8% female and 50.2% male. In the analyses, we withhold female as the contrast group. We also include race/ethnicity in the analysis as a series of binary variables. Overall, 25.4% of the sample was coded as Black, and 20.3% Hispanic, in contrast to 54.3% White. Due to a lack of variation in the number of "Other/Mixed" race/ethnic respondents who reported being incarcerated, this group is omitted from the analyses. Finally, to capture the influence of family formation as a turning point, we include measures representing marriage and parenthood. About 16.0% of the sample was married, and respondents reported 0.44 biological children on average, with a standard deviation of about 0.82 and a within-person standard deviation of 0.43.

Criminal and Delinquent Controls

Measures that captures delinquency/offending as respondent's offending should be the most significant predictor of both incarceration and suspension. We draw data from six items asking how many times the respondent: 1) carried a gun in the past 30 days; 2) destroyed property; 3) stole something worth more than $50; 4) stole something worth less than $50; 5) attacked or assaulted; and/or, 6) sold illegal drugs in the past year. We sum responses to these variables such that greater scores represent larger amounts of delinquent behaviors. This measure has a mean of 7.19, and ranges from 0 (no offending) to 1500 (a great deal of offending) with an overall standard deviation

[2]Similar conclusions are drawn from multivariate analyses when a linear or quadratic term is used to model age.

of 51.39. As a time variant measure, delinquency/offending varies across time within-persons (within standard deviation = 40.82). We transformed values of this measure using the natural log function to correct for the significant right skew.

In addition to offending, we also make use of a question asking if respondents had been members of a gang during the first nine rounds of the survey. Responses are dichotomized to represent gang participation as an adolescent, with about 8.8% of respondents reporting gang participation, and a standard deviation of 0.28. Peer gang participation is also captured and established through a question asking the percent of the respondent's peers who were part of a gang in 1997 (1 = almost none; 2 = about 25%; 3 = about half; 4 = about 75%; 5 = almost all). Responses averaged 1.58, with a standard deviation of 0.97, suggesting that on average less than 25% of respondent's peers were in a gang. Finally, a measure of peer delinquency is based on 5 measures indicating the share of respondent's peers who smoked, drank alcohol, used illegal drugs, skipped school, and had sex in 1997 (1 = almost none; 2 = about 25%; 3 = about half; 4 = about 75%; 5 = almost all). Responses are averaged and produce a mean of 2.35 with a standard deviation of 1.06.

Socioeconomic Controls

Socioeconomic controls are represented as educational attainment, household income, and mother's educational attainment. Twenty-two percent of the sample reported less than a high school education, about one third reported high school and some college education (32.8% and 30.6%, respectively), and about 14.5% had a bachelor's degree of more. The respondent's total family income (in 1997 dollars) has a mean of $46,697, standard deviation of $49,561, and ranges from $0 to $417,074 a year. The modal educational attainment for respondent's mothers is a high school degree (35.8% of the sample), whereas about 23.0% of respondents had mothers with less than a high school education, 23.5% had mothers with some college experience, and 17.8% had mothers with a Bachelor's degree or more.

Contextual Controls

Finally, a set of contextual controls are added to account for factors related to the respondent's environment that may contribute to the odds of suspension and/or incarceration. To account for higher rates incarceration in Southern states (Carson, 2018), a dichotomous time-varying measure is included representing if respondents lived in a Southern state (the Census definition of the South is used). Slightly less than 40% of the sample lived in the South during the period of observation, with a within-person standard deviation of 0.13 as respondents moved into (or out of) the South. A time invariant family routines scale capturing how frequently respondents participated in activities with their family in 1997 is also included. The scale ranges from 0 to 28, with higher scores indicating more family routine activities. The average sample score is 15.0 with standard deviation of 4.28.

In addition to geographic location and family routines, we also include a scale representing bonds to the respondent's school experiences in 1997. Factor loading was used to identify five school-related questions to create a scale with the following items: whether teachers are good, whether teachers are interested in students, whether students are graded fairly, whether discipline is fair, and whether respondents feel safe at school. Responses to these items included 1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree, and were reverse coded such that higher scores represent more positive school experiences. The final scale ranges from 5 to 20, with a mean of 15.11 and a standard deviation of 2.43.

Analytic Strategy

To address the research questions presented above, we conduct three analyses. As our first broad aim is to explore the bivariate relationship between suspension and incarceration throughout young adulthood, we first begin by plotting the share of respondents who reported being incarcerated between the ages of 18 and 26 by their suspension status. Creating this allows us to

gain a visual understanding of the association between suspension and incarceration during young adulthood.

Next, we turn to multivariate analyses to gain a more comprehensive understanding of the relationship between school suspension and incarceration across time. Because the NLSY-97 data are longitudinal panel data, a model must be used that accounts for this nested design as the data violate the assumption of independence made by OLS regression. To capture both within-person changes and between-person differences, we use a mixed-effects model (Rabe-Hesketh & Skrondal, 2012). A mixed-model nests time within the individual and, through the introduction of a random intercept, accounts for a lack of independence over time. In the case of the NLSY-97, time is nested within the individual allowing each case to randomly vary across the 15 waves of data. To address our second research aim and test whether any suspension during middle or high school is associated with incarceration, the first set of longitudinal models uses a dichotomous measure of suspension experience (and an array of controls) to predict incarceration for the entire analytical sample (n = 7,623). To address our third research aim, we then focus solely on students who ever received a suspension to examine whether a greater number of suspensions (e.g., being suspended in more grades) is significantly associated with increased risk of incarceration later in life. Thus, for this final analysis, an interval level measure of grades suspended is included in the model, and the sample is limited to those who experienced at least one suspension (n = 2,710).[3]

Results

We begin by examining the share of men and women who were incarcerated between ages 18 and 26 by their suspension status (Figure 1). Among those who never experienced a suspension during grades 7 through 12, less than 1% were incarcerated during any given year. The share who

[3] We performed an attrition analysis to examine how missing data affected the results of the study. Results of a series of t-tests (not shown, but available) demonstrated no significant patterns of sample attrition suggesting that patterns of missing data are missing at random.

experienced an incarceration during each round of the NLSY-97 was greater for those who reported one or more suspensions during grades 7 through 12. At 18, about 2.5% of the ever suspended sample reported being incarcerated, and this share peaked to 4.5% in 2009. The higher incarceration rates of the ever suspended sample throughout young adulthood provides evidence – at least at the bivariate level – of a positive association between suspension and the odds of experiencing an incarceration. To examine whether this relationship persists when delinquent, socioeconomic, demographic, and contextual characteristics are accounted for, we turn to our mixed-effects models.

** Figure 1 About Here **

Table 2 presents the mixed-effects models examining the association between experiencing any suspension during grades 7 to 12 and the risk of incarceration. To ease interpretation of the generalized multi-level models, we report odds ratios from the multivariate models. Model 1 from Table 2 uses the dichotomous measure of suspension experience as the focal independent variable and the set of demographic controls. We first note that the significant chi-square value (915.54, $p < 0.001$) indicates the model fits the data well, with about 66.4% of the variability in incarceration occurring within-persons across time. Chi-squared values remain significant in subsequent Table 2 models and are not discussed further. Turning to the substantive results, the model demonstrates that experiencing a suspension during grades 7 to 12 is significantly associated with greater odds of incarceration in young adulthood. Specifically, ever suspended youth report 878% greater logged odds of experiencing an incarceration than youth who were never suspended. Regarding demographic characteristics, the model suggests men experience logged odds of incarceration that are 1015% greater than those of women. Relative to Whites, Blacks experience 88% greater logged odds of incarceration, whereas those who are currently married report a 75% reduction in the logged odds of incarceration. Finally, each additional child born is associated with a 49% increase in the

logged odds of incarceration, a result likely due to the positive correlation between multipartner fertility and incarceration history (Carlson & Furstenberg, 2006).

Controls for criminal and delinquent behaviors by both the respondent and their peers are introduced in Model 2. The addition of these measures reduces the strength of the association between any suspension experience and incarceration, although ever suspended individuals continue to experience logged odds of incarceration that are 617% greater than their never suspended peers. The self-reported crime scale control significantly associated with the odds of incarceration, as a one unit increase in the logged self-reported crime scale increases the logged odds of incarceration by 20%. Gang participation also increased the odds of incarceration during young adulthood by 158%, and a one unit increase on the measure of peer delinquency increases the odds of incarceration by 21%.

Experiencing any suspension during grades 7 through 12 significantly increases the logged odds of incarceration in young adulthood by 287% when socioeconomic and contextual controls are incorporated in the mixed-effects model (Model 3, Table 2). Results of the rest of the model echo recent work as Black individuals reported significantly elevated odds of incarceration relative to White individuals, males report higher odds in incarceration relative to females, self-reported crime is positively associated with incarceration, and social class (measured as educational attainment) is negatively related to incarceration.

** Table 2 About Here **

Table 3 uses mixed-effects modeling to estimate the association between the number of grades in which respondents experienced a suspension and the risk of incarceration in adulthood. To accomplish this task, the models in Table 3 are restricted to only respondents who experienced at least one suspension during grades 7 through 12, and the focal independent variable is an interval level measure representing the number of grades respondents were suspended. Model 1 includes

this measure of suspension and demographic controls. The model fits the data well with a significant chi-square value (684.51, $p < 0.001$) and about 64.54% of the variability in incarceration occurring within-persons across time. Subsequent models in Table 3 also fit the data well as indicated by significant chi-squared values. Model 1 suggests that with each additional grade ever suspended individuals reported a suspension, the logged odds of incarceration increase by 34%. Furthermore, men who were suspended at least once experienced 1329% greater logged odds of incarceration than their female counterparts, Blacks reported 21% greater logged odds of incarceration relative to Whites, married young adults experienced a 72% reduction in the logged odds of incarceration, and each additional biological born increased the odds of incarceration by 37%.

The number of grades suspended remained significantly associated with the odds of incarceration for ever suspended young adults with the addition of crime and delinquent controls in Model 2. Specifically, each additional grade a respondent was suspended increased the logged odds of incarceration by 26%. Self-reported crime and gang participation as an adolescent also increased the odds of incarceration such that a one unit increase in the logged crime scale heightened the logged odds of incarceration by 14% and adolescent gang participation amplified the logged odds of incarceration by 118%.

When introducing socioeconomic and contextual controls in the final model of Table 3, the association between the number of grades respondents were suspended and incarceration fails to reach statistical significance. Young adults who experienced any suspension and did not complete a high school education reported logged odds of incarceration that were 165% greater than ever suspended young adults with a high school education. Those with at least some college experience, on the other hand, experienced a 53% reduction in the logged odds of incarceration than their high

school educated peers and young adults whose mother had a college degree reported 44% lower odds of incarceration than those whose mothers had a high school education.

** Table 3 About Here **

Discussion and Conclusion

Through the lens of the life-course perspective (Elder, 1985; Farrington, 2003; Laub & Sampson, 1993; Sampson & Laub, 2003), and situated alongside research investigating exclusionary school discipline and the "school-to-prison pipeline" metaphor (Wald & Losen, 2003; see also Crawley & Hirschfield, 2018; Hirschfield, 2018b; Mowen & Brent, 2016; Schollenberger, 2015; Rosenbaum, 2018), this study sought to examine the empirical relationship between school suspensions and incarceration during young adulthood. Leveraging 15 waves of data from the NLSY-97, results of mixed-effects models, overall, demonstrated a significant positive relationship between school suspensions experienced during adolescence and odds of later imprisonment, net the effect of key controls such as levels of crime and delinquency. The following section discusses results from the study, outlines their contributions to the school discipline/life-course literature, and proposes policy implications for recent trends in school discipline and punishment.

Our first broad aim of the study was to examine the relationship between suspension and incarceration across time at the bivariate level. Mirroring prior work (e.g., Losen & Martinez, 2013; Shollenberger, 2015), results of a time-series plot demonstrated a strong link between suspension and incarceration between age the ages of 18 and 26. However, it is possible that this bivariate relationship could be due to selection. That is, suspended youth may be more delinquent as youth (and thus, suspended) and criminal into adulthood (and therefore, incarcerated). To account for this effect, we then moved into the multivariate context and hypothesized that having experienced a suspension between grades 7-12 would be positively associated with the odds of incarceration even after accounting for key covariates including levels of offending. Results from mixed effects

regression model found support for this hypothesis. Specifically, our findings demonstrated that youth who experienced a suspension between grades 7-12 experienced significantly higher odds of incarceration as young adults, relative to youth who were never suspended. When placed within the life-course framework, this finding strongly suggests that school suspensions serve as a negative turning point that places youth at much greater risk of experiencing incarceration as they transition to adulthood. In short, this finding supports the notion of a "school-to-prison pipeline" whereby youth who experience exclusionary punishment in school are, in fact, put at significant risk of incarceration (Crawley & Hirschfield, 2018).

Finally, and largely drawing from the concept of *cumulative disadvantage* (Sampson & Laub, 1997), we then focused our analysis on only youth who reported receiving a suspension and hypothesized that a greater number of suspensions would relate to increasingly greater odds of incarceration. This hypothesis was not supported suggesting that the frequency of suspension does matter as much as the difference between no suspension and at least one suspension. In other words, the risk of incarceration during adulthood is expected to increase when a suspension is experienced, but subsequent suspensions are not associated with an additional increase in the odds of incarceration. This null finding echoes the finding of Liberman et al. (2014) who, using three waves of data from the Project on Human Development in Chicago Networks, examined the relationship between arrest and offending. Specifically, the authors found that the first arrest a youth received was significantly associated with increased offending, but the effect of subsequent arrests on offending was much smaller. Likewise, in the current study we find similar support for the notion that the first sanction of suspension is associated with much greater odds of incarceration (hypothesis one), but subsequent suspension experiences are not significantly associated with odds of incarceration (hypothesis two).

Findings from the latter analysis, however, raise attention to one of the potential explanations for the relationship between suspension and incarceration. Specifically, in the analysis focused specifically on students who were suspended (results from Table 3), results showed that students who failed to complete high school were placed at significantly greater odds of incarceration relative to youth who did complete high school. This finding suggests that the relationship between suspension and incarceration may be partially mediated by educational attainment. Though subsequent studies should aim to unpack this finding further, this result echoes Caspi (1987) and Sampson and Laub's (1997) concepts of cumulative continuity and cumulative disadvantage. From this vantage point, experiencing exclusionary school sanctions may encourage additional negative outcomes – such as failure to complete high school – that progressively build on one another as they mortgage future conventional opportunities and reinforce life-trajectories heading toward imprisonment (Sampson & Laub, 1997). Our results, therefore, suggest that the effect of suspension on incarceration may be partially mediated by educational attrition highlighting the need for future research to explore additional mediating mechanisms through which the "school-to-prison pipeline" may operate.

Overall, within the life-course literature, educational "snags" in the form of missed educational time, grade retention, and dropping out are linked to a host of adverse consequences for youth as they move into and through adulthood (Bersani & Chappie, 2007; Elder, 1998; Hagan et al., 1996; Jimerson, 1999; Moffitt, 1993; Pettit & Western, 2004; Sampson & Laub, 2003; Thornberry, Moore, & Christenson, 1985). Mounting research is converging on the idea that current punitive disciplinary strategies not only increase the likelihood of these "snags" but – perhaps more importantly – serve as anti-social turning points themselves (Mowen & Brent, 2016). However, research in this area has been limited to examining how exclusionary discipline impacts short-term effects on youths' academic and personal outcomes including arrest and juvenile justice contact (see

Mowen & Brent, 2016; Welsh & Little, 2018). This study extends prior scholarship by locating school discipline within the longer life-course process by showing that suspensions – a disciplinary mechanism within a larger assemblage of punitive punishment practices – function as a negative turning point increasing the odds of incarceration as an adult.

Certainly, these results stack alongside others challenging the effectiveness of exclusionary punishment practices in their current form (see Welsh & Little, 2018). From a policy standpoint, these findings bolster recent calls for disciplinary reform, alternative strategies, and remedial practices (American Psychological Association Zero Tolerance Task Force, 2008; Gregory et al., 2015; Hirschfield, 2018b). Perhaps the most commonly cited includes the behavioral management system known as Positive Behavioral Interventions and Supports (PBIS). This approach seeks to enhance schools' response to student misconduct and the school climate through the use of effective, efficient, and equitable practices (see Sugai & Horner, 2002). Restorative justice principles have also been proposed which would address the damages and needs of all parties involved to remedy harms, address underlying issues, and prevent future misconduct (Gonzalez, 2017; Zehr, 2002). Others have outlined specific changes to how schools respond to student misconduct; these recommendations include supporting educators though professional training, ongoing data collection and analysis, collaborating with communities, working with families, and increasing the presence of mental health supports (Kupchik et al., 2015; Skiba & Losen, 2015; Winkler et al., 2017). While each strategy addresses the immediate outcomes of school discipline, it is likely they will also curb the findings here. However, it is important to note that there are likely to by ideological, financial, personnel, political, and institutional barriers that hinder such reform initiatives (Brent, 2019; Lohrmann et al., 2005).

Outside of the contributions of this research, there are several notable limitations. First is that the results presented under this study are limited to a sample of men and women born between

1980 and 1984. Whether a positive association between school suspension and incarceration exists for more contemporary cohorts should be explored. Furthermore, the data only examine respondents into early adulthood. Future work should explore whether school suspension continues to be associated with greater odds of incarceration as men and women age through their adult lives. An important contribution the present study offers to the literature on school sanctions as a turning point is the lasting influence that suspensions can have throughout young adulthood. However, we do not explore the specific mechanisms by which suspensions are positively associated with incarceration. Suspensions, for example, could introduce teenagers to the criminal justice system through the growing presence of school resource officers. An understanding of the exact mechanisms by which suspended youth are more likely to experience contact with the criminal justice system would provide researchers and policy makers with a better understanding of ways to implement school sanctions that act as less of a turning point in the lives of young men and women.

Overall, this study builds on work documenting the negative effects associated with school discipline by situating their effects within youths' life-course. More specifically, it uncovers that – contrary to their disciplinary purpose – suspensions not only lead to negative short-term outcomes, but they also may incite adverse long-term outcomes extending into adulthood. When interpreted through the life-course perspective, these findings suggest that suspensions may serve as important anti-social turning points that reshape trajectories and usher youth toward incarceration later in life. This study also provides empirical evidence documenting the widely employed "school-to-prison pipeline" metaphor used within the literature. In a similar vein, findings uncover that suspensions serve as a significant disciplinary conduit within schools through which the "school-to-prison pipeline" operates.

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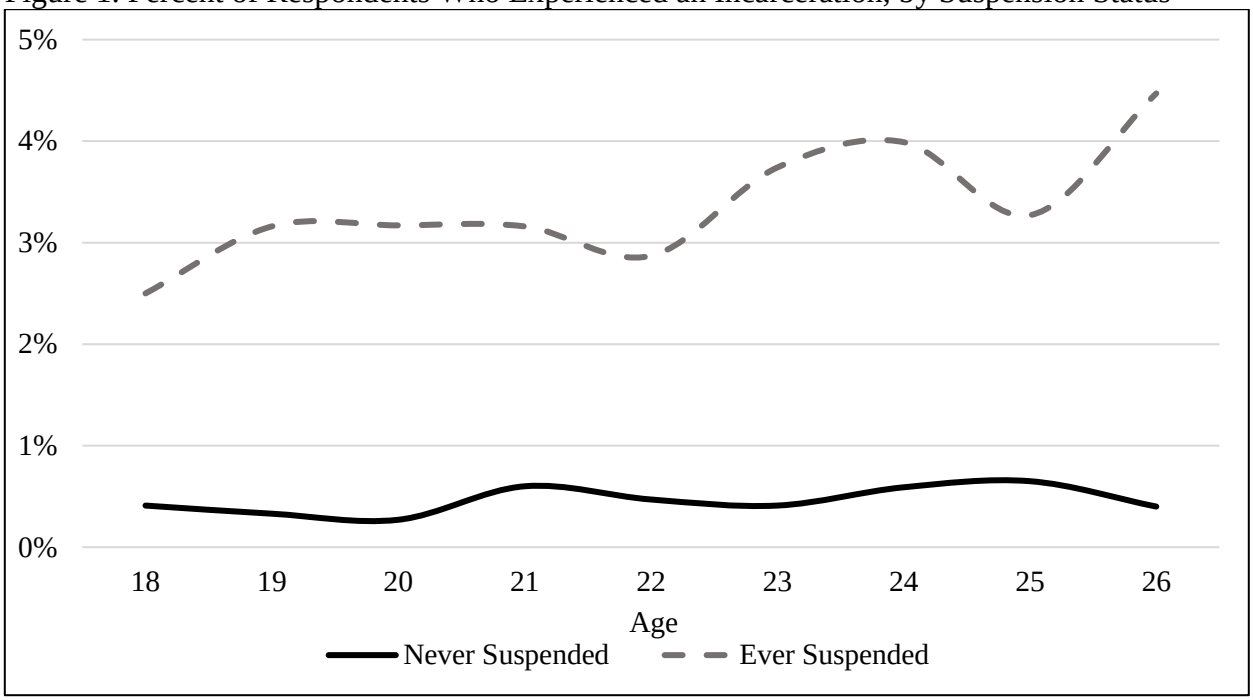
FIGURES

Figure 1. Percent of Respondents Who Experienced an Incarceration, by Suspension Status



Source: National Longitudinal Survey of Youth 1997, rounds 1-15

TABLES

Table 1. Descriptive Statistics for Variables Used in Multivariate Analyses

TI/TV	Variable	Mean	SD	Range		Within SD
Dependent Variable						
TV	Incarcerated	0.015	0.112	0	1	0.092
Independent Variables						
TI	Ever Suspended	0.345	0.475	0	1	--
TI	Number of Grades Suspended (given suspended during at least one grade)	1.527	0.803	1	6	--
Demographic Controls						
TI	Age (in years) at Round 1	14.80	1.44	12.17	18.25	--
TI	Male	0.498	0.500	0	1	--
TI	Non-Hispanic White	0.543	0.498	0	1	--
TI	Non-Hispanic Black	0.254	0.435	0	1	--
TI	Hispanic	0.203	0.403	0	1	--
TV	Married	0.160	0.367	0	1	0.244
TV	Number of Biological Children	0.441	0.824	0	8	0.428
Criminal & Delinquent Controls						
TV	Crime	7.190	51.390	0	1500	40.819
TI	Respondent Teen Gang Participation	0.088	0.283	0	1	--
TI	Most Peers Belong in Gang	1.580	0.971	1	5	--
TI	Delinquent Peers	2.347	1.056	1	5	--
Socioeconomic Controls						
TV	Less than High School	0.220	0.415	0	1	0.108
TV	High School or Equivalent	0.328	0.470	0	1	0.250
TV	Some College	0.306	0.461	0	1	0.323
TV	Bachelor's Degree or More	0.145	0.352	0	1	0.258
TV	Income (in 1997 dollars)	$46,696.9	$49,560.6	$0.0	$417,074.3	$36,574.1
TI	Mother Less than High School	0.230	0.421	0	1	--
TI	Mother High School or Equivalent	0.358	0.479	0	1	--
TI	Mother Some College	0.235	0.424	0	1	--
TI	Mother Bachelor's Degree or More	0.178	0.382	0	1	--
Contextual Controls						
TV	Living in the South	0.398	0.489	0	1	0.132
TI	Family Routines	15.002	4.280	0	28	--
TI	School Bonds	15.113	2.429	5	20	--

Note: TI = time-invariant; TV = time-variant; SD = standard deviation

Table 2. Mixed Effects Regression Models Predicting the Odds of Incarceration (n = 7,623)

	Model 1			Model 2			Model 3		
	β	SE	OR	β	SE	OR	β	SE	OR
Ever Suspended	2.28	0.18 ***	9.78	1.97	0.18 ***	7.17	1.35	0.17 ***	3.87
Demographic Controls									
Age (in years) at Round 1	0.00	1.15	0.21	-1.92	1.15	0.15	-1.72	1.08	0.18
Age (in years) at Round 1 Squared	0.05	0.04	1.06	0.06	0.04	1.07	0.06	0.04	1.06
Male	2.41	0.21 ***	11.15	2.30	0.21 ***	10.00	2.11	0.19 ***	8.21
Race/Ethnicity (ref. = non-Hispanic White)									
Non-Hispanic Black	0.63	0.18 ***	1.88	0.61	0.18 ***	1.83	0.42	0.18 *	1.52
Hispanic	0.28	0.21	1.32	0.27	0.21	1.31	0.10	0.21	1.10
Married	-1.33	0.25 ***	0.26	-1.28	0.25 ***	0.28	-1.17	0.24 ***	0.31
Number of Biological Children	0.40	0.07 ***	1.49	0.38	0.07 ***	1.46	0.25	0.07 ***	1.29
Criminal & Delinquent Controls									
log(Crime)	-	-	-	0.18	0.03 ***	1.20	0.17	0.03 ***	1.18
Respondent Teen Gang Participation	-	-	-	0.95	0.20 ***	2.58	0.70	0.19 ***	2.02
Most Peers Belong in Gang	-	-	-	-0.03	0.08	0.97	-0.09	0.08	0.91
Delinquent Peers	-	-	-	0.19	0.10 *	1.21	0.13	0.09	1.14
Socioeconomic Controls									
Educational Attainment (ref. = High School)									
Less than High School	-	-	-	-	-	-	1.15	0.16 ***	3.15
Some College	-	-	-	-	-	-	-0.67	0.21 **	0.51
Bachelor's Degree or More	-	-	-	-	-	-	-1.67	0.49 ***	0.19
Income (in 1997 dollars)	-	-	-	-	-	-	0.00	0.00 *	1.00
Mother's Education (ref. = High School)									
Less than High School	-	-	-	-	-	-	-0.13	0.18	0.88
Some College	-	-	-	-	-	-	-0.42	0.21 *	0.65
Bachelor's Degree or More	-	-	-	-	-	-	-0.10	0.26	0.91
Contextual Controls									
Living in the South	-	-	-	-	-	-	-0.09	0.15	0.91
Family Routines	-	-	-	-	-	-	0.01	0.02	1.02
School Bonds	-	-	-	-	-	-	-0.04	0.03	0.96
Random Intercept	0.83	8.52	2.29	3.62	8.50	37.23	3.86	8.00	47.45
Chi-Squared		915.54 ***			872.86 ***			686.3 ***	
Percent of Within-Person Variation		66.44 %			65.45 %			59.82 %	

*p < 0.05; **p < 0.01; ***p < 0.001

Table 3. Mixed Effects Regression Models Predicting the Odds of Incarceration (n = 2,710)

	Model 1			Model 2			Model 3		
	β	SE	OR	β	SE	OR	β	SE	OR
Number of Grades Suspended	0.29	0.11 **	1.34	0.23	0.11 *	1.26	0.18	0.11	1.19
Demographic Controls									
Age (in years) at Round 1	-2.10	1.37	0.12	-2.53	1.37	0.08	-2.21	1.30	0.11
Age (in years) at Round 1 Squared	0.08	0.05	1.08	0.09	0.05	1.09	0.08	0.04	1.08
Male	2.66	0.26 ***	14.29	2.59	0.26 ***	13.29	2.41	0.26 ***	11.10
Race/Ethnicity (ref. = non-Hispanic White)									
Non-Hispanic Black	0.49	0.21 *	1.63	0.47	0.21 *	1.60	0.37	0.21	1.45
Hispanic	0.17	0.26	1.18	0.16	0.26	1.17	0.11	0.25	1.12
Married	-1.14	0.28 ***	0.32	-1.09	0.28 ***	0.34	-1.01	0.28 ***	0.37
Number of Biological Children	0.31	0.08 ***	1.37	0.29	0.08 ***	1.34	0.23	0.08 *	1.25
Criminal & Delinquent Controls									
log(Crime)	-	-	-	0.13	0.04 ***	1.14	0.12	0.04 ***	1.13
Respondent Teen Gang Participation	-	-	-	0.78	0.22 ***	2.18	0.62	0.21 **	1.86
Most Peers Belong in Gang	-	-	-	0.01	0.09	1.01	-0.05	0.09	0.95
Delinquent Peers	-	-	-	0.20	0.11	1.22	0.16	0.11	1.17
Socioeconomic Controls									
Educational Attainment (ref. = High School)									
Less than High School	-	-	-	-	-	-	0.97	0.19 ***	2.65
Some College or More*	-	-	-	-	-	-	-0.75	0.26 *	0.47
Income (in 1997 dollars)	-	-	-	-	-	-	0.00	0.00	1.00
Mother's Education (ref. = High School)									
Less than High School	-	-	-	-	-	-	-0.18	0.21	0.83
Some College	-	-	-	-	-	-	-0.58	0.26 *	0.56
Bachelor's Degree or More	-	-	-	-	-	-	0.15	0.32	1.17
Contextual Controls									
Living in the South	-	-	-	-	-	-	-0.20	0.18	0.82
Family Routines	-	-	-	-	-	-	0.04	0.02	1.04
School Bonds	-	-	-	-	-	-	-0.04	0.04	0.96
Random Intercept	6.16	10.09	474.44	9.28	10.11	10706.57	7.89	9.68	2657.90
Chi-Squared		684.51 ***			651.49 ***			533.49 ***	
Percent of Within-Person Variation		64.54 %			63.64 %			59.61 %	

*p < 0.05; **p < 0.01; ***p < 0.001

*Note: Educational attainment categories "Some College" and "Bachelor's Degree or More" collapsed in Table 3 analyses due to small cell sizes