**Explaining the school-to-prison pipeline via race and gender: The impact of trauma, school suspension, school dropout, and delinquency**

**Abstract**

            The school-to-prison pipeline represents a significant problem for many at-risk young people - an incarceration outcome that has resulted from both the schools and juvenile/criminal justice systems movement toward zero tolerance and “tough on crime” approaches. School difficulties and removals, as well as involvement with the justice systems, have disproportionately included young people of color. Research is, however, limited that identifies which factors within this “pipeline” phenomenon have been most detrimental and leads to long-term involvement in the criminal justice system and incarceration. Trauma, race/ethnicity, school suspensions, dropping out of school, delinquency, and incarceration were examined in this study separately for males and females. Using data from the National Longitudinal Survey of Youth 1997 (*n* = 7,103), this study found that suspensions in elementary or middle school (and subsequently dropping out of school) significantly predicted the frequency of lifetime incarceration for African-American males, but not for other race/ethnic or gender groups. Not only are African-American boys more likely than other groups to be suspended and drop out of school, such school removal has a much more detrimental effect on this group over time by increasing the likelihood of lifetime involvement in the criminal justice system. Implications and possible explanations are set forth.

**Key Words:** school-to-prison pipeline; incarceration; school suspension; trauma; dropout; gender; racial and ethnic disparities

**Introduction**

The term “school-to-prison pipeline” is commonly used to describe the contact young people have with the juvenile and adult criminal justice systems as a result of the punitive actions taken by schools. Primarily, it reflects the past generation’s move toward “zero tolerance” policies and an increasing police presence in schools (National Council of Juvenile and Family Court Judges, 2016). The pipeline is not typically a direct referral from school discipline to the juvenile court judge or incarceration facility, but it increases the likelihood that the process ends up there for many students. There are hundreds of thousands of middle and high school students nationwide who are at significant risk for delinquency adjudication, juvenile court supervision, and incarceration as their problems begin within school discipline protocols (Advancement Project, 2011; U.S. Department of Education, 2014a).

Many schools have set the stage for a formal? punishment response to non-violent misbehaving incidents, disruptions of school routines, and truancy, among other acts that use to be handled informally (Muschert & Peguero, 2010; Mallett, 2016). As is the norm in zero-tolerance policies, however, students’ involvement with a strict discipline protocol can quickly escalate to school suspensions, removal, and, for some, dropping out altogether. These policies and school approaches have disproportionately impacted numerous groups of young people across most school types and locations, but most significantly racial and ethnic minorities (Mallett, 2016; Marchbanks, Peguero, & Kay, 2018; Varela, Peguero, & Eason, 2018).

Explanatory research on how the school-to-prison impacts students has been ongoing, though more recently investigated through the analysis of large state or national databases.  These researchers have found that academic failure, suspension, and/or dropout are strongly related to youthful delinquency (Christle, Jolivette, & Nelson, 2006; Mittleman, 2018; Mowen, Brent, & Boman, 2019); that school suspension is significantly related to a juvenile arrest that same month (Monahan, VanDerhei, Bechtold, & Cauffman, 2014) and over subsequent years when suspensions were (and were not) experienced again (Hemez, Brent, & Mowen, 2019; Mowen & Brent, 2016; Novak, 2018); that racial inequalities in school-based punishments partially explains adulthood arrest inequalities (Barnes & Botz, 2018), though this relationship among race, gender, school discipline, and other factors is complicated (Mendoza, Blake, Marchbanks, & Ragan, 2020; Young, Young, & Butler, 2018); and that racial and ethnic “school-to-prison” disparities are found across both urban and rural schools (Marchbanks, Peguero, Varela, Blake, & Eason, 2018).

This paper expands upon a recent study by Hemez, et al., (2019) who used the National Longitudinal Survey of Youth dataset and examined the life-course perspective looking at how school suspensions impact the odds of imprisonment during young adulthood. This current research builds upon this and other recent studies (knowing that incarceration outcomes are multi-factorial) and investigates adult incarceration outcomes as a consequence of childhood trauma, school suspension, and school dropout, differentiating the impact via race and gender.

*School Suspensions*

Millions of children and adolescents across the country experience school discipline during their young lives. There have been regional reviews of school district discipline data as well as national studies of the 2011-2012 and 2013-2014 academic years by the U.S. Department of Education’s Civil Rights Division of over 99% of the country’s public-school districts that include over fifty million students. Of the students enrolled in the 2011-2012 academic year, 3.5 million students experienced in-school suspension, 1.9 million students were suspended out-of-school for at least one day (with an average suspension being three and a half days), 1.6 million students were suspended from school more than one time for at least one day, and 130,000 students were expelled from school for the remainder of that academic year (U.S. Department of Education, 2014a; 2016). This represents 2.2 - 2.4% of all elementary school-aged students and 11.0 - 11.3% of all secondary school-aged students who were suspended out-of-school during the 2011-2012 and 2013-2014 academic years. Many schools are making efforts to decrease the use of suspensions in recent years as the total number of out-of-school suspensions decreased from 3.5 million to 2.8 million students from 2012 to 2014 (U.S. Department of Education, 2014a; 2016).

*Racial Disparity*

These school exclusions are racially disparate: while 6% of all primary and secondary-aged students received one or more out-of-school suspensions, the percentage is 18% for African-American male students, 10% for African-American female students, 5% for white male students, and only 2% for white female students (Fuentes, 2014; U.S. Department of Education, 2013; 2014b; 2016). Thus, African-American boys are more than three times likely than white boys and African-American girls are five times more likely than for white girls to be suspended from school. When reviewed longitudinally, it is estimated that between 30-50% of students experience suspension between kindergarten and twelfth grade, with reports as high as 60% in some middle and high schools, and, dependent on location, 70% for some students of color (Losen, 2012; Losen & Martinez, 2013; Losen, Hewitt, & Toldson, 2014; U.S. Department of Education, 2014c).

Even after controlling for possible explanations, such as misbehavior, academic performance, student attitudes, parental attention, school characteristics and location, and socio-economic status, the racial disparities in school suspension remain, thus suggesting the possibility that these racial disparities are a result of unfair targeting of certain students based on race/ethnicity (Kupchik, 2010; The Equity Project, 2014). Indeed, students of color in schools that have higher proportions of African-American students are found more likely to receive punitive, and not rehabilitative, discipline responses by school personnel, which remain significant after controlling for other possible explanations (Addington, 2014; Majd, 2011; Skiba & Williams, 2014).

Since a significant majority of students punished under harsh discipline protocols and policies are for discretionary offenses (such as misbehaving or not following school rules), negative perceptions of certain students by school and police personnel increase their risk for receiving more strict discipline for minor misbehaviors. This often exacerbates the disadvantages faced by impoverished students and students of color, further entangling them within discipline regimes (Kupchik, 2010). In addition, longitudinal reviews have found that suspensions from school tend to precede serious delinquency for African-American and Hispanic students and that delinquent behaviors are often triggered by academic disengagement (Payne & Welch, 2010), thereby creating the vicious cycle of involvement in the juvenile justice system.

*Impact on Students*

Texas has led the research investigation into school discipline impact. A six-year (2000-2006) longitudinal review of all students in Texas schools, as well as these students’ state juvenile justice involvement and outcome data found the following: 54% of students were suspended or expelled between their seventh- and twelfth-grade school years; of those removed from their schools were disproportionately high numbers of African-American students and those with special education disabilities; students suspended or expelled were held back one grade 31% of the time compared to only 5% for all students; 10% of suspended or expelled students dropped out of school; students suspended or expelled for discretionary reasons (which accounted for 97% of all disciplinary actions) were three times more likely to be involved with the juvenile courts the following year even after controlling for other possible explanations. The results did vary across schools, depending on the diversity of student populations (Fabelo, Thompson, Plotkin, Carmichael, Marchbanks, & Booth, 2011).

            More broadly for students nationwide caught in school exclusion policies, just one suspension in the 9th grade has been found to double the risk for failing subsequent academic courses in high school and raise the risk of dropping out by 20% (Balfanz, Byrnes, & Fox, 2015; Kang-Brown, Trone, Fratello, & Daftary-Kapur, 2013; Marchblanks, Blake, Booth, Carmichael, Seibert, & Fabelo, 2014). The risk of dropping out of high school is doubled if a student is arrested on or off school grounds and is four times greater if the student is formally involved with the juvenile courts (Sweeten, 2006). These results reinforce and mirror other, smaller-scale investigations of students involved with school discipline that have found that these students miss instructional time, and thus opportunities to learn, fall behind academically, and form negative attitudes or perceptions concerning schools and the school personnel (Skiba, Arendondo, & Rausch, 2014).

*Dropping out of School*

High school dropout rates declined from 14% to 7% between 1967 and 2014. Though dropping out of school continues to disproportionately impact minority students and males (5% for white males, 7% for African-American males, and 11% for Hispanic males), these dropout estimates do not include students who are incarcerated, who are disproportionately minority students, partially explaining why the gap between white and minority dropout rates is not as wide as expected. These dropout rates also do not reflect the lower graduation rates (below 70%), as measured by four years in high school, that are disproportionately found in lower-income, minority, and urban public schools (Child Trends, 2015).

School suspensions and expulsions increase the chances for school failure or dropout, poor peer choices, and delinquent behaviors. Suspension or expulsion due to a discretionary school violation makes juvenile court involvement almost three times more likely. As noted, being suspended as a freshman in high school doubles the risk for school dropout, with more than one-third of males who are suspended for more than ten days also experience spending time in a juvenile correctional facility. Placement into a juvenile correctional facility makes completing high school difficult for most youthful offenders (Fabello, et al., 2011; Schollenberger, 2014), another serious consequence of the school exclusion policy. When a student drops out of high school, moreover, the risk of lifetime incarceration increases more than three-fold (Martin & Halperin, 2006).

*Trauma and Delinquency*

Trauma impacts many young people and their families. Some of these traumatic experiences are more readily identified – growing up in poverty, living in unsafe and violent neighborhoods, and being victimized by abuse. However, other traumas – including neglect, school bullying, and losing family members (by death, prison, or other unexpected reasons) are less frequently cited as significantly impactful, though may be just as difficult for young people to handle (Buffington, Pierkhising, & Marsh, 2010; Klain, 2014). In addition, children’s exposure to more than one form of trauma and traumas experienced over time are of serious concern, increasing the risk for school problems and juvenile court involvement. While the link is not always direct, for many trauma experiences occur in childhood and others over the child’s developmental years, most adolescents who become involved with the juvenile and/or justice system have significant trauma backgrounds (Mallett & Tedor, 2019).

*Gender*

The number of adolescent females involved with the juvenile courts has increased over the past two decades, leading to more female offenders being adjudicated delinquent (29% of all delinquencies in 2017) and held in detention (Ehrmann, Hyland, & Puzzanchera, 2019). Rather than adolescent females today becoming more violent than adolescent females in prior decades, this increased involvement with the juvenile justice system by adolescent females may reflect differential treatment, mandatory arrest policies for domestic violence, other changes in law enforcement policies (for example, releasing status offenders from detention centers), or a decrease in public tolerance for juvenile crime overall (Feld, 2009; Pasko & Chesney-Lind, 2010).

Delinquency pathways and trauma victimization experiences are not the same for adolescent males and females. Girls’ delinquency starts earlier than boys, and certain risk factors have a greater impact on girls – earlier maturation, maltreatment victimization, and anxiety, depression, and post-traumatic stress disorder symptoms (Chesney-Lind & Irwin, 2008; Fontaine, Carbonneau, Vitaro, Barker, & Tremblay 2009). Juvenile justice-involved girls are also significantly more often victimized than boys by crimes, traumas, and repeated victimizations.  Acts such as running away from home and other truancy offenses are often related to abuse and trauma being experienced in the home (Huizinga, Miller, & the Conduct Problems Prevention Research Group, 2013; Zahn, Agnew, Fishbein, Miller, Winn, Dakoff, et al., 2010).

Evidence to date cannot conclusively find that maltreatment effects for females are greater when compared to males in delinquency development, though the impact of abuse and neglect is different. Within delinquent populations, girls are more likely than boys to have been victims of sexual abuse and are equally likely to have experienced physical abuse (Hennessey, Ford, Mahoney, Ko, & Siegfried, 2004; Zahn, et al., 2010). The cumulative impact of maltreatment, in addition to other risks often associated with this maltreatment such as substance abuse and school difficulties, may affect girls more negatively than boys. It is clear, though, that family conflict as well as exposure to community violence, both risk factors for delinquent activities, have a heightened impact on girls (Tracy, Kempf-Leonard, & Abramoske-James, 2009; Sherman & Balck, 2015; Zahn, Hawkins, Chiancone, & Whitworth, 2008).

*Research Hypotheses*

            Based on what is known about the school-to-prison pipeline, this study tests the race/ethnicity difference in the lifetime impact of punitive discipline protocols and trauma experiences separately for males and females. Specifically, this study examines the following four specific hypotheses:

1. Racial/ethnic minorities and males are more likely to receive an out-of-school suspension and drop out of school more often than whites and females, respectively.
2. Out-of-school suspensions and dropping out of school increase the likelihood of incarceration, even after controlling for delinquency engagement.
3. The strength of the relationships between out-of-school suspensions and incarceration and dropping out of school and incarceration are stronger among racial/ethnic minorities and males than whites and females, respectively, even after controlling for delinquency engagement.
4. Some of the racial/ethnicity and gender differences in incarceration are explained by their differences in out-of-school suspensions and dropping out of school.

**Methods**

*Data and Sample*

            The data used to test these hypotheses are from the National Longitudinal Survey of Youth 1997 (NLYS97), which follows adolescents who were born between 1980-1984 and were between the ages 12 and 17 years old in 1997 at the time of the first interview. At the Round 17 interview collected between 2015-2016, these respondents were between the ages of 30 to 36 years old. NLSY97 is based on a nationally representative sample of young people in the United States with oversampling of Hispanic and Latino and blacks/African-Americans to increase the representation of those of color.

Unlike other large-scale national-level delinquency studies (such as the Monitoring the Future and the Youth Risk Behavior Surveillance System), the NLSY97 selects random samples at the household level instead of at the school level. The NLSY97, thus, includes “at-risk” young people who are often left out of delinquency studies because of their absences, suspension, dropping out, or being expelled from school. This is especially important for this study with a focus on the effect school exclusion policy has on the involvement in the juvenile/criminal justice system. A strong response rate of almost 80% (*n*=7,103) of the original respondents in NLSY97 completed the interview for Round 17. This study is based on these 7,103 respondents who completed the Round 17 interview.

*Measures*

*Socio-Demographic Variables*

Four socio-demographic variables that are often related to delinquency were included as control variables in all analyses. *Gender* is a dummy variable where males were coded one (49.6%) and females were coded zero (50.4%). Race/ethnicity[[1]](#footnote-1) is measured as a series of following three dummy variables: non-Hispanic black/African-American (27.1%), Hispanic (20.9%), and non-Hispanic other (3.3%), while non-Hispanic white (48.7%) is treated as a reference group in all analyses. *Age* is an interval ratio variable that measures respondents’ age at Round 17 collected in 2015-2016 with a mean of 32.92 and a standard deviation of 1.44 years old. Socio-economic status (*SES*)[[2]](#footnote-2) is a proxy dummy variable that measures respondents’ socio-economic status where respondents with at least one biological or resident parent who earned a college degree or higher were coded one (48.5%) and all others were coded zero (51.5%). Parents’ education status is used to measure SES because of a high number of missing values on household income, and because parents’ education level is significantly associated with family or household income (The Pell Institute, 2017). *Two parent home* measures whether respondents grew up with both biological parents (coded one, 48.7%) or did not grow up with both biological parents (coded zero, 51.3%). *Education* is a ratio variable that measures the highest level of educational achievement (with a mean of 11.6 years with a S.D. of 2.6).

*Urban/rural[[3]](#footnote-3)* is a dichotomous variable measuring whether respondents lived in rural (coded zero, 26.9%) or urban (coded one, 73.1%) areas. Respondents’ *citizenship status[[4]](#footnote-4)* is a dummy variable and was measured similarly to how the study by Bersani (2014) measured the first-generation immigrants, where those who were born in the U.S. were coded as one (87.6%) and all others were coded zero (12.4%). Those who were not born in the U.S. included respondents who were not born in the U.S., but maybe naturalized citizens, and those who could not determine their birthplace. For the majority of respondents, their citizenship status was determined based on the information from the first round of data collected in 1997 (see Footnote 4 for information on cases with a missing value on citizenship status). As expected, respondents’ *citizenship status* and *race/ethnicity*[[5]](#footnote-5) were significantly correlated with one another (*r*=-0.43, *p*<.001). A cross-tab analysis of the racial and ethnic composition of those who were not born in the U.S. shows that the majority of them identified themselves as Hispanics (71.8%), while about an equal proportion (9-10%) of the remaining respondents identified as each of the other three groups (i.e., whites blacks, and other). All of these control variables, except for *age*, were created using Round 1 data collected in 1997.

*School Suspension*

The NLSY97 includes information on the number of days suspended from school for the period between 1985 to 2007 when respondents were between 1 and 5 years old and 23 and 27 years old, respectively. Based on the information on the current grade completed[[6]](#footnote-6) for the period for each respondent, three school suspension variables were created. *Elementary school suspension* measures the total number of days suspended during Grade 1 through Grade 5. About 6.9% of respondents reported having ever been suspended from elementary school, ranging for a day to 90 days total with a mean of 0.44 days (*s.d.*=3.10). *Middle school suspension* measures the total number of days suspended during Grade 6 through Grade 8. About 35.6% of respondents reported having ever been suspended from middle school, ranging from a day to 600 days total with a mean of 4.97(*s.d.*=18.63). *High school suspension* measures the total number of days suspended during Grade 9 through Grade 12. About 6.4% of respondents have ever been suspended from high school, ranging from a day to 180 days total with a mean of 0.49 (*s.d.*=4.51).

*School Dropout*

Based on the information on the current grade completed[[7]](#footnote-7) for the period for each respondent, two dropout variables were created. *Elementary/middle school dropout* measures whether or not the respondent dropped out before Grade 8 (coded one for dropping out before Grade 8 and coded zero for not dropping out before Grade 8). There was just one respondent who dropped out before middle school, thus we combined elementary and middle school dropouts together. Additional 248 respondents (3.7%) dropped out before Grade 8. *High school dropout* measures whether or not respondents dropped out after Grade 8 but before Grade 12 (coded one for dropping out before Grade 12 and coded zero for not dropping out before Grade 12). A total of 1,038 respondents (15.4%) dropped out during high school.

*Childhood Trauma*

There are several measures of childhood trauma variables, all asked in 2002 for the last five years of experience (except for gun and poverty variables) when respondents were between the ages of 18 to 22. All trauma variables were measured as dichotomous variables and coded one for “Yes” and coded zero for “No” of experiencing the traumatic event in the past five years. Trauma variables are grouped into three types of traumatic events. There are four variables related to *crime trauma*. *Jail* measures whether or not a family member has been jailed in the last five years. *Victim* measures whether or not respondents have been a victim of crime in the past five years. There are two trauma variables related to gun. The first variable, called *gun less than 12*, measures whether or not respondents saw someone shot with a gun when they are less than 12 years old, and the second variable, called *gun between 12 to 18*,  measures whether or not respondents saw someone shot with a gun when they are between 12 and 18 years old. There are eight variables related to *poverty trauma*. *Unemployment* measures whether nor not a family member was unemployed in the last five years. *Homeless* measures whether or not respondents were homeless in the last five years. Additional six variables measure the poverty status of the respondents’ family in 1997, 1998, 1999, 2000, 2001, and 2002 when respondents were between the ages of 13 to 17 and to 18 to 22. Finally, there are three variables that measure *family trauma*. *Death* measures whether or not a family member died in the last five years. *Hospitalization* measures whether or not a family member was hospitalized in the last five years. *Divorce* measures whether or not parents got a divorce in the last five years.

*Juvenile delinquency and adult crime*

*Juvenile delinquency* and *adult* *crime* are measured using respondents’ engagement in the following six law-breaking behaviors from 1997 through 2007 data[[8]](#footnote-8): “destroying property,” “stealing something less than $50 in value,” “stealing something more than $50 in value,” “other property crimes,” “attacking or assaulting someone,” “selling illegal drugs.” All juvenile delinquency and adult crime variables were measured as dichotomous variables and coded one for “Yes” and coded zero for “No” of engaging in the behavior in the past year for the time period. Respondents were between the ages of 13 to 17 in 1997 and 23 and 27 in 2007. Juvenile delinquency variables measure whether or not respondents have ever engaged in the six law breaking behavior before age 18, while adult crime variables measure whether or not respondents have ever engaged in the six law breaking behaviors after age 18 during the time period between 1997 to 2007.

*Incarceration*

Two kinds of incarceration variables were created: one measuring incarceration before age 18 (*juvenile incarceration*) and another measuring incarceration after age 18 (*adult incarceration*). These incarceration variables were created using monthly incarceration data from 1992 (when respondents were between the ages of 8 to 12) to 2018 (when respondents were between the ages of 34 to 38). Both juvenile incarceration and adult incarceration are dichotomous variables coded one if they have ever been incarcerated and coded zero if they have never been incarcerated.

**Results**

Descriptive statistics of variables used in this study separately by race/ethnicity and gender are shown in Tables 1 and 2. The probability values for the significant group difference were calculated using chi-square for categorical variables and one-way ANOVA for quantitative variables. The four hypotheses are examined using the Structural Equation Model (SEM) and the Logistic Regression analysis.

[Table 1 here]

[Table 2 here]

*SEM modeling*

The Structural Equation Model (SEM) for this research is a combination of Confirmatory Factor Analysis and multiple logistic regression. The model is based on the school-to-prison pipeline and is shown in Figure 1 (denoted by the dashed lines). In the figure, the SEM model indicates the theorized relationships between latent and observed variables. To simplify the presentation, all variables that are double outlined were modeled with relationships to each of the three timepoints: K-8 school suspensions/dropouts, high school suspensions/dropouts, and adult incarceration.

There are three major timepoints in the pipeline: elementary/middle school, high school and adulthood. The elementary/middle school and high school timepoints are latent variables that measure suspensions and dropouts at those points, and the outcome measured at adulthood is an observed indicator variable for adult incarceration. Five other latent constructs were created to be used as exogenous variables: three types of trauma (*family trauma*, *poverty trauma*, and *crime trauma*), *juvenile delinquency*, and *adult crime*. Additional observed variables include *age* in 2015, *gender*, *SES*, *two-parent home*, *race/ethnicity*, *citizenship*, *urban/rural*, highest grade completed and *juvenile incarceration*. Three simultaneous regression models are incorporated in the SEM model, one for each of the endogenous timepoints.

The SEM results that include only significant relationships are shown in Figure 1. Red lines indicate that there is a negative relationship and green lines indicate a positive relationship. The dotted line represents the theoretical pipeline. The absence of a line indicates a non-significant relationship.

[Figure 1 here]

At the first timepoint of K-8 school suspensions/dropouts, two of three trauma latent variables are significantly related. Being a victim of crime or having witnessed it is related to an increase in suspensions/dropouts. Having experienced family trauma is related to lower school suspensions/dropouts. Regarding demographic characteristics, being a U.S. citizen, black/African American, male, and older in age are related to an increase in suspensions; living in a two-parent home and having a higher family SES were related to a decrease in suspensions. The same variables were modeled for high school suspensions/dropouts along with K-8 suspensions/dropouts, *juvenile delinquency* and *juvenile incarceration*. The significant direct relationships with an increased high school suspension were observed for being a male, having a lower SES, and not living in a two-parent home. Finally, the model for *adult incarceration* includes all the same variables as high school suspensions/dropouts plus the latent variable for *adult* *crime*. There are four significant relationships with an increase in *adult incarceration*: *adult crime*, *juvenile incarceration*, K-8 school suspensions/dropouts, and being black/African American. While these are the only direct relationships, there are many indirect relationships through the K-8 school suspensions/dropout.

*Logistic regressions for gender and race/ethnicity*

To explore the significant relationships found in SEM models and the role of gender and race/ethnicity, we attempted to analyze separate SEM models by race/ethnicity and gender. However, none of the models were able to converge. Therefore, logistic regressions were constructed for each of six gender-race/ethnicity combinations (the other race category was too small to be modeled thus not included in the analyses). Results of the logistic regression models are shown in Table 3. Whether or not the participant was incarcerated as an adult was regressed on each observed variable from the SEM model, including the observed variables used to create the latent variables, for each of six combinations of gender and race/ethnicity. The Nagelkerke R2 for the six models ranges from 29.4% to 43.3%.  The area under the ROC curve ranges from 0.810 to 0.925.

[Table 3 here]

*The role of trauma on adult incarceration*

For variables associated with crime related traumas, the odds for a female Hispanics to be incarcerated as an adult are 28.9 (95% CI: 2.0, 349.5) times higher when between the ages of 12 and 18, they had been shot at, or had seen someone get shot or shot at with a gun than not. The odds for white males are 2.5 (95% CI: 1.3, 4.7) and 1.8 (95% CI: 1, 3.3) times higher to be incarcerated as an adult if there were was a household member in jail or the respondent was a victim of a violent crime respectively. For black/African American males, the odds of being incarcerated as an adult were 2.4 (95% CI: 1.3, 4.3) times higher if there was a household member in jail than not. For Hispanic males, the odds of being incarcerated as an adult were 3.8 (95% CI: 1.8, 8.4) times higher if there was a household member in jail than not.

For variables associated with poverty related traumas, the odds for white females being incarcerated as an adult are 2.7 (95% CI: 1.1, 6.7) times higher if the household was in poverty in 1999 and 2.8 (95% CI: 1.1, 6.9) times lower if the household was in poverty in 2000. The odds of being incarcerated as an adult for black/African American females is 22.5 (95% CI: 3.3, 154.7) times higher if the household was in poverty in 1997 than not. The odds of being incarcerated as an adult for Hispanic females is 28.9 (95% CI: 2.3, 363). For black/African American males, the odds of being incarcerated as an adult are 1.9 (95% CI: 1.1, 3.4) times higher if the household was in poverty in 1999 than not. For Hispanic males, the odds of being incarcerated as an adult are 2.5 (95% CI: 1.1,5.9) times lower if any adult member had been unemployed more than six months. For variables associated with family related traumas, the odds of white females being incarcerated as an adult is 2.5 (95% CI: 1.2, 5.0) times higher if the respondent’s parents had divorced than not.

*The role of juvenile delinquency on adult incarceration*

For white females, the odds of being incarcerated as an adult are 2.5 (95% CI: 1.3, 4.6) times higher if ever engaged in “attacking or assaulting someone” as a juvenile and 3.5 (95% CI: 1.5, 7.4) times lower if ever engaged in “selling drugs” as a juvenile. For white males, the odds of being incarcerated as an adult are 1.8 (95% CI: 1.2, 2.8) times higher if ever engaged in “stealing something more than $50 in value” as a juvenile. For black/African American males, the odds of being incarcerated as an adult are 1.5 (95% CI: 1.0, 2.4) times higher if ever engaged in “destroying property” as a juvenile. For Hispanic males, the odds of being incarcerated as an adult are 2.5 (95% CI: 1.4, 4.6) times higher if ever engaged in “other property crimes” as a juvenile.

*The role of adult crime on adult incarceration*

For white females, the odds of being incarcerated as an adult are 5.7 (95% CI: 2.3, 14.1) times higher if ever engaged in “steaking something more than $50 in value” as an adult, 2.2 (95% CI: 1.1, 4.2) times higher if ever engaged in “attacking or assaulting someone” as an adult, and 4.2 (95% CI: 2.1, 8.2) times higher if ever engaged in “selling illegal drugs” as an adult. For Black/African American females, the odds of being incarcerated as an adult are 5.4 (95% CI: 1.9, 15.3) times higher if ever engaged in “attacking or assaulting someone” as an adult. For white males, the odds of being incarcerated as an adult are 2.2 (95% CI: 1.5, 3.4) times higher if ever engaging in “selling illegal drugs” as an adult. For Black/African American males, the odds of being incarcerated as an adult are 2.3 (95% CI: 1.3, 3.8) times higher if ever engaging in “selling illegal drugs” as an adult. For Hispanic males, the odds of being incarcerated as an adult are 2.6 (95% CI: 1.2, 5.8) and 3.0 (95% CI: 1.6, 5.9) times higher if ever engaged in “stealing something less than $50 in value” as an adult and “selling illegal drugs” as an adult, respectively.

*The role of school suspensions and dropouts on adult incarceration*

For white females, the odds of being incarcerated as an adult are 2 (95% CI: 1.1, 3.5) and 3 (95% CI: 1.2, 5.8) times higher if they were suspended in elementary school or dropped out of high school, respectively. For black/African American females, the odds of being incarcerated as an adult are 8.4 (95% CI: 0.2, 49.4) and 3.4 (95% CI: 0.5, 10.7) times higher if dropped out in K-8 school and dropped out in high school, respectively. For Hispanic females, the odds of being incarcerated as an adult are 1.0 (95% CI: 1.0, 1.1) times higher if suspended in middle school. For white males, the odds of being incarcerated as an adult are 2.4 (95% CI: 1.0, 5.4) times higher if they dropped out of high school. For black/African American males, the odds of being incarcerated as an adult are 3.1 (95% CI: 1.3, 7.2) times higher if they dropped out of high school. For Hispanic males, the odds of being incarcerated as an adult are 4.3 (95% CI: 1.5, 11.7) if a high school dropout.

*The role of juvenile incarceration on adult incarceration*

For black/African American males, the odds of being incarcerated as an adult are 21.4 times higher if they were ever incarcerated as a juvenile. For Hispanic males, the odds of being incarcerated as an adult are 7.5 times higher if they were ever incarcerated as a juvenile.

*The role of other demographics on adult incarceration*

The odds of being incarcerated as an adult are 3.1 (95% CI: 2.5, 3.9) times higher if male than female, 1.4 (95% CI: 1.1, 1.7) times lower if the participant grew up with both parents, 1.6 (95% CI: 1.3, 2.0) times lower if at least one parent has a college degree or higher, and 1.4 (95% CI: 1.0, 2.0) times higher if they are not a U.S. citizen. For Hispanic females, the odds of being incarcerated as an adult are 1.2 times lower for every year beyond 2015 they are in age. For white males, the odds of being incarcerated as an adult are 1.6 (95% CI: 0.5, 10.2) times higher if not a U.S. citizen and 1.4 (95% CI: 1.0, 1.9) times lower if they live in a rural area as opposed to an urban area. For black/African American males, the odds of being incarcerated as an adult are 1.03 (95% CI: 0.4, 2.9) times higher if not a U.S. citizen. For Hispanic males, the odds of being incarcerated as an adult are 2.7 (95% CI: 1.4, 5.2) times lower if at least one parent with a college degree or higher.

**Discussion**

            The analysis of the school-to-prison pipeline using a nationally representative sample does confirm some of the findings by other researchers that school suspension has a grave impact on many students of color (Muschert & Peguero, 2010), but makes a case to rename the pathway more accurately to “early school suspension to prison pipeline for poor African-American males.”  These results suggest four major implications related to the school-to-prison pipeline.

            First, as expected, African-American students are suspended from school more days than white students during elementary school and middle school, but there was no difference in the number of high school suspension across race/ethnicity. No difference during high school might be explained by the fact that at-risk youth are more likely to drop out before high school. In fact, there is a strong correlation between school suspension and dropout, and African-American male students drop out earlier than white male students. As expected, moreover, males and students with neither parent with a college degree are suspended from school more days than females and students with at least one parent with a college degree or higher, respectively. Therefore, whether it is applied reasonably on par with a misconduct, the school discipline appears to be applied more frequently to poor, African-American boys during elementary school and middle school. Interestingly, these results indicate that SES is more important than race/ethnicity or even gender in explaining school suspension during middle school and high school. As SES is strongly related to race/ethnicity in the expected direction, there appears to be cumulative disadvantages, suggested by Goffman (2015), of being poor, minority boys, especially African-Americans, when navigating through school.

            Similar to the findings on school suspension, as expected, males and students with neither parent with a college degree drop out of school earlier than females and students with at least one parent with a college degree or higher, respectively. The race/ethnicity difference was found only among males and indicated that African-American males drop out of school earlier than white males. There was no race/ethnicity difference in dropout among females. As expected, school suspension was strongly related to school dropout; however, it could not explain away the gender difference or race/ethnicity difference among males in school dropout. For both males and females, middle school suspension had the strongest relationship with dropping out of school. As dropping out of school is related to both delinquency and incarceration, it seems that for some youth, the school-to-prison pipeline does not necessarily start with the action by the school or school discipline but for some, especially among poor African-American boys, the path to the involvement in the justice system starts with their own disengagement with school.

            Second, similar to the findings on school dropout, as expected, males and those with neither parent with a college degree were incarcerated longer and at earlier ages than females and those with at least one parent with a college degree or higher, respectively. The race/ethnicity difference in incarceration was found among both males and females, but in the opposite directions, such that African-American males were incarcerated longer and at earlier age than white males, while white females were incarcerated longer and at earlier age than African-American females. For both males and females, parents’ education level was more strongly related to incarceration than race/ethnicity. As race/ethnicity is related strongly to SES in the direction expected among African-Americans, once again, the results suggest the cumulative disadvantages among poor African-American males that could explain their higher likelihood for involving in the juvenile/criminal justice systems.

Third, interestingly and somewhat unique in the literature (Marchbanks, et al., 2018; Varela, et al., 2018), African-Americans reported a lower level of delinquency engagement than whites among both males and females, which explains why white females were incarcerated longer and at earlier ages than African-American females, but cannot explain the race/ethnicity difference in incarceration among males. As expected, school suspension and dropout are strongly related to delinquency, and race/ethnicity difference in delinquency became even greater after controlling for school suspension and dropout, meaning that whites engage in delinquency at even a higher level than African-Americans once school suspension and dropout are controlled. The unexpected result on delinquency between African-Americans and whites might be explained by the way *delinquency* was measured in this study. Because this study measured delinquency as the number of years respondents have engaged in each of the delinquent behaviors included in the study, it is possible that this measure failed to distinguish serious/chronic offenders and minor offenders.

Once again, moreover, middle school suspension and school dropout were related to delinquency more strongly than race/ethnicity or SES. As expected (Christle, et al., 2006), delinquency has the strongest relationship with incarceration among both males and females, though school dropout is as important in explaining incarceration as delinquency among males. Moreover, delinquency cannot explain away why African-American males were incarcerated longer and at earlier ages than white males, suggesting the possibility of racially differential treatment by the juvenile/criminal justice systems. Among males and females, furthermore, in confirming the school-to-prison pipeline, middle school suspension and dropout remain important in explaining both types of incarceration after controlling for delinquency.

Fourth, as expected, the results with the interaction terms indicate that there appear to be significant gender differences in the effect of school suspension and dropout on incarceration. Additionally, dropping out of school has a stronger negative effect on males compared to females on incarceration. Contrary to the expectation, there was, however, no significant difference in the strength of the effect school suspension and dropout have on incarceration between African-American males and white males.

            The more unique findings here reinforce how one group of young people – poorer African-American boys – follow the pathway from school troubles and suspensions to later adolescent and young adult incarceration. This group has historically been both disadvantaged and targeted by authorities and police (Goffman, 2015), resulting in disproportionate involvement in both the juvenile and adult criminal justice systems (Furdella & Pzzanchea, 2015; The Sentencing Project, 2016). As discussed earlier, the significant increase in school suspensions (and expulsions) over the past thirty years is because of the removal of students of color, not white students (Losen, 2012; Losen & Martinez, 2013; Losen & Skiba, 2010; Losen, Hewitt, & Toldson, 2014; The Center for Civil Rights, 2013).

            As research continues to reinforce what seems to be the result of targeting of students of color for violations of school policies and subsequent school removals (and later incarceration), understanding the reasons for this is important. While many schools are moving away from a zero tolerance approach to school discipline (Mallett, 2016), the remnants of these policies and the juvenile justice system’s “tough on crime” era find the juvenile and adult prison populations very disproportionately African-American, Hispanic, or Native-American, depending on locality (Golinelli & Minton, 2014; The Council of State Governments Justice Center, 2015).

            Increasingly, the reasons for these disproportionate outcomes are being identified as bias. Implicit and explicit bias and stereotyping are not explanations that make school, law enforcement, or justice-system personnel comfortable. However, most individuals have stereotypes that may unknowingly affect their perceptions of others. Research continues to show that cultural stereotypes impact perceptions and reactions to minority groups, and those with whom the majority is different (Graham & Lowry, 2004; Kirwan Institute, 2014; Levinson, 2007). Decisions to invoke school discipline, involve the ideology, perceptions, values, and potential biases of those making the decisions. Most studies find that the students who are disproportionately involved with school discipline and the juvenile courts do not misbehave more nor are they more prone to causing school- or community-based problems. Instead, unfair targeting by school and police personnel may explain such disparity, a practice that runs counter to the principles of quality education and appropriate socialization toward young adulthood (Carter, Fine, & Russell, 2014; Kupchik, 2010).

**Limitations**

            There are a number of limitations to the study data and methodology. While the NLSY is considered one of the more important national databases on adolescents and young adults available to researchers, the 1997 sample was selected based on geographic housing units, and oversampled African-American and Hispanic/Latinos. This study did not weight the sample for its analysis, limiting some of the finding generalizations. Also, the models did not explain a large variance in all the interested outcomes, asking that more research hypotheses and additional predictor variables be pursued.

**Conclusion**

            Over the past decade, many state policy makers have been rethinking the use of zero-tolerance, exclusion approaches within schools, as the nation as a whole also began reversing “get tough on crime” approaches in juvenile justice. Much like the “get tough” approach within the justice system, the harsh zero tolerance approach was not applied equally to all students, for the brunt of its effect was felt by students of color, especially poor African-American boys. This study not only confirmed such race/gender/class differences in the way school exclusion policies were applied, but how school discipline, especially during middle school, and school dropout both relate to long-term involvement in the juvenile/criminal justice systems.

It is important to further investigate the “school-to-prison pipeline” phenomenon that continues to disproportionately impact and harm young people of color. These racial and ethnic disparities are significant across most school, juvenile justice, and adult criminal justice measures, so understanding the reasons why they happen needs to be discerned. From there, policies and practices that change, or at least do not reinforce, these disparities can be pursued.

**References**

Addington, L.A. (2014). Surveillance and security approaches across public school levels. In G.W. Muschert, S. Henry, N.L. Bracy, & A.A. Peguero (eds), *Responding to school violence: Confronting the Columbine effect* (71-88). Boulder, CO: Lynne Rienner Publishers, Inc.

Advancement Project, Education Law Center – PA, FairTest, The Forum for Education and Democracy, Juvenile Law Center, NAACP Legal Defense and Educational Fund, Inc. (2011). *Federal policy, ESEA reauthorization, and the school-to-prison pipeline*. Washington DC.

Balfanz, R., Byrnes, V., & Fox, J. (2015). *Sent home and put off-track: The antecedents, disproportionalities, and consequences of being suspended in the ninth grade*. In D.J. Losen (ed), *Closing the school discipline gap: Research for policymakers*. New York: Teachers College Press.

Barnes, J.C. & Motz, R.T. (2018). Reducing racial inequalities in adulthood arrest by reducing inequalities in school discipline: Evidence from the school-to-prison pipeline. *Developmental Psychology*, 54(12), 2328-2340.

Buffington, K., Pierkhising, C.B., & Marsh, S. (2010). *Ten things every juvenile court judge should know about trauma and delinquency*. Reno, NV: National Council of Juvenile and Family Court Judges.

Carter, P.L., Fine, M., & Russell, S. (2014). *Discipline disparities overview*. Discipline Disparities: A Research-to-Practice Collaborative. The Equity Project at Indiana University, Center for Evaluation and Education Policy, Bloomington, IN.

Chesney-Lind, M. & Irwin, K. (2008). *Beyond bad girls: Gender, violence and hype.* New York: Routledge.

Child Trends (2015). *Indicators on children and youth*. Washington DC.

Christle, C., Jolivette, K., & Nelson, C. (2005). Breaking the school to prison pipeline: Identifying school risk and protective factors for youth delinquency. *Exceptionality*, 13, 69-88.

Ehrmann, S. Hyland, N., Puzzanchera, (2019). *Girls in the juvenile justice* system. Office of Justice Programs, U.S. Department of Justice, Washington, DC.

Fabelo, T., Thompson, M.D., Plotkin, M., Carmichael, D., Marchbanks, M.P. III, & Booth, E.A. (2011). *Breaking schools’ rules: A statewide study of how school discipline relates to students’ success and juvenile justice involvement*. New York, NY: College Station, TX: Council of State Governments Justice Center; Public Research Policy Research Institute of Texas A & M University.

Feld, B. (2009). Violent girls or relabeled status offenders?: An alternative interpretation of the data. *Crime & Delinquency*, *55*(2), 241-165.

Fontaine, N., Barbonneau, R., Vitaro, F., Barker, E.D., & Tremblay, R.E. (2009). Research review: A critical review of studies on the developmental trajectories of antisocial behavior in females. *Journal of Child Psychology and Psychiatry*, 50, 363-385.

 Furdello, J. & Puzzanchera, C. (2015). *Delinquency cases in juvenile court, 2013*. Office of Juvenile Justice and Delinquency Prevention, Office of Justice Programs, U.S. Department of Justice, Washington, DC.

 Goffman, A. (2015). *On the run: Fugitive life in an American city.* Chicago IL: The University of Chicago Press.

 Golinelli, D. & Minton, T. (2014). *Prison and jail inmates at midyear*. Office of Justice Programs, Bureau of Justice Statistics, U.S. Department of Justice, Washington, D.C.

 Hemez, P., Brent, J.J., & Mowen, T.J. (2019). Exploring the school-to-prison pipeline: How school suspensions influence incarceration during young adulthood. *Youth Violence and Juvenile Justice*, published online at:<https://doi.org/10.1177%2F1541204019880945>

 Hennessey, M., Ford, J.D., Mahoney, K., Ko, S.J., & Siegfried, C.B. (2004). *Trauma among girls in the juvenile justice system*. National Child Traumatic Stress Network, Los Angeles, CA.

 Huizinga, D. Miller, S., & the Conduct Problems Prevention Research Group (2013). *Developmental sequences of girls’ delinquent behavior*. Girls Study Group, Office of Juvenile Justice and Delinquency Prevention, Office of Justice Programs, U.S. Department of Justice, Washington, DC.

Kang-Brown, J., Trone, J., Fratello, J. & Daftary-Kapur, T. (2013). *A generation later: What we’ve learned about zero tolerance in schools*. New York, NY: Vera Institute of Justice, Center on Youth Justice.

 Klain, E. (2014). Understanding trauma and its impact on child clients. *Child Law Practice, 33(9)*, American Bar Association, Washington, DC.

 Kupchik, A. (2010). *Homeroom security: School discipline in an age of fear*. New York: New York University Press.

 Losen, D.L. (2012). *Sound discipline policy for successful schools: How redressing racial disparities can make a positive impact for all*. In S. Bahena, N. Cooc, R. Currie-Rubin, P.

 Losen, D.L., Hewitt, D., & Toldson, I. (2014). *Eliminating excessive and unfair discipline in schools: Policy recommendations for reducing disparities*. Discipline Disparities: A Research-to-Practice Collaborative. The Equity Project at Indiana University, Center for Evaluation and Education Policy, Bloomington, IN.

 Losen, D.L. & Martinez, T. (2013). *Out of school & off track: The overuse of suspensions in American middle and high schools*. Los Angeles, CA: Civil Rights Project at UCLA.

 Majd, K. (2011). Students of the mass incarceration nation. *Howard Law Journal*, 54(2), 343-394.

 Mallett, C.A. (2016). *The school-to-prison pipeline: A comprehensive assessment*. Springer Publishing, New York, NY.

 Mallett, C.A., & Fukushima-Tedor, M. (2019). *Juvenile delinquency: Pathways and prevention*, SAGE Publications, Thousand Oaks, CA.

 Marchblanks, M.P., Blake, J.J., Smith, D., Seibert, A.L., Carmichael, D., & Fabelo, T. (2014). More than a drop in the bucket,: The social and economic costs of dropouts and grade retentions associated with exclusionary discipline. *Journal of Applied Research on Children*, 5(2), 17-31.

Marchbanks, M.P., Peguero, A.A., & Varela, K.S. (2018). School strictness and disproportionate minority contact: Investigating racial and ethnic disparities with the “school-to-prison pipeline.” *Youth Violence and Juvenile Justice*, 16(2), 241–259.

 Martin, N. & Halperin, S. (2006). *Whatever it takes: How twelve communities are reconnecting out-of-school youth*. Washington DC: American Youth Policy Form.

 Mendoza, M., Blake, J.J., Marchbanks, M.P., & Ragan, K. (2020). Race, gender, and disability and the risk for juvenile justice contact. *The Journal of Special Education*, 53(4), 226-235.

 Mittleman, J. (2018). A downward spiral? Childhood suspension and the path to juvenile arrest. *Sociology of Education*, 91(3), 183-204.

 Monahan, K., VanDerhei, S., Bechtold, J., & Cauffman, E. (2014). From the school yard to the squad car: School discipline, truancy, and arrest. *Journal of Youth and Adolescence*, 43, 1110-1122.

 Mowen, T. & Brent, J. (2016). School discipline as a turning point: The cumulative effect of suspension on arrest. *Journal of Research in Crime and Delinquency*, 53, 628-653.

 Mowen, T., Brent, J., & Boman, J.H., (2019). The effect of school discipline on offending across time. *Justice Quarterly*, published online at: <https://doi.org/10.1080/07418825.2019.1625428>

Muschert, G.W. & Peguero, A.A. (2010). The Columbine effect and school antiviolence policy. *Research in Social Problems and Public Policy*, 17, 117-148.

 National Council of Juvenile and Family Court Judges (2016). *Introduction to school engagement and connectedness*. Reno, NV: School Justice Partnership, National Council of Juvenile and Family Court Judges.

Novak, A. (2019). The school-to-prison pipeline: An examination of the association between suspension and justice system involvement. *Criminal Justice and Behavior*, 46(8), 1165-1180.

 Pasko, L. & Chesney-Lind, M. (2010). Under lock and key: Trauma, marginalization, and girls’ juvenile justice involvement. *Justice Research and Policy*, *12*(2), 25-49.

 Payne, A.A. & Welch, K. (2010). Racial threat and punitive school discipline. *Social Problems*, 25, 26-39.

 Sherman, F.T. & Black, A. (2015). *Gender injustice: System-level juvenile justice reforms for girls*. The National Crittenton Foundation and National Women’s Law Center, Portland, OR.

 Shollenberg, T.O. (2015). *Racial disparities in school suspension and subsequent outcomes: Evidence from the National Longitudinal Survey of Youth, 1997*. In D.J. Losen (ed), *Closing the school discipline gap: Research for policymakers*. New York: Teachers College Press.

 Skiba, R.J., Arrendonda, M.I., & Rausch, M.K. (2014). *New and developing research on disparities in discipline*. Discipline Disparities: A Research-to-Practice Collaborative. The Equity Project at Indiana University, Center for Evaluation and Education Policy, Bloomington, IN.

 Skiba, R.J. & Williams, N.T. (2014). *Are black kids worse? Myths and facts about racial differences in behavior*. Discipline Disparities: A Research-to-Practice Collaborative. The Equity Project at Indiana University, Center for Evaluation and Education Policy, Bloomington, IN.

 Sweeten, G. (2006). Who will graduate? Disruption of high school education by arrest and court involvement. *Justice Quarterly,* 23, 462-473.

 The Center for Civil Rights Remedies (2013). *A summary of new research, closing the school discipline gap: Research to practice*. The Civil Rights Project, Washington, DC.

The Council of State Governments Justice Center (2015). *Reducing recidivism and improving other outcomes for young adults in the juvenile and adult criminal justice systems*. Austin, TX.

The Equity Project at Indiana University (2014). *Discipline disparities series: Key findings*. Discipline Disparities: A Research-to-Practice Collaborative. The Equity Project at Indiana University, Center for Evaluation and Education Policy, Bloomington, IN.

The Sentencing Project (2016). *Racial disparities in youth commitments and arrests*. Washington, DC.

Tracy, P.E., Kempf-Leonard, K., & Abramoske-James, S. (2009). Gender differences in delinquency and juvenile justice processing: Evidence from national data. *Crime & Delinquency*, *55*(2), 171-215.

 U.S. Department of Education (2013). *Digest of education statistics, 2012* (NCES 2014-015, Chapter 2). National Center for Education Statistics, Washington, DC.

 U.S. Department of Education (2014a). *Civil rights data collection, data snapshot: School discipline, Issue brief No. 1*. Office of Civil Rights, Washington, DC.

 U.S. Department of Education (2014b). *Appendix 1: U.S. Department of Education: Director of Federal School Climate and Discipline Resources*. Washington DC.

 U.S. Department of Education (2014c). *Civil rights data collection, data snapshot: School discipline, Issue brief No. 1*. Office of Civil Rights, Washington, DC.

 U.S. Department of Education (2016). *2013-2014 civil rights data collection: A first look*. Office of Civil Rights, Washington, DC.

 Varela, K.S., Peguero, A.A., & Eason, J.M. (2018). School strictness and education: Investigating racial and ethnic educational inequalities associated with being pushed out. *Sociology of Race and Ethnicity*, 4(2), 261–280.

 Young, J.L., Young, J.R., & Butler, B.R. (2018). A student saved is not a dollar earned: A meta-analysis of school disparities in discipline practice toward black children. *The Journal of Culture and Education*, 17(4), 95-112.

 Zahn, M.A., Agnew, R., Fishbein, D., Miller, S., Winn, D., Dakoff, G., Kruttschnitt, C., Giordano, P., Gottfredson, D.C., Payne, A.A., Feld, B.C., & Chesney-Lind, M. (2010). *Girls study group: Causes and correlates of girls’ delinquency*. Office of Juvenile Justice and Delinquency Prevention, Office of Justice Programs, U.S. Department of Justice, Washington D.C.

 Zahn, M.A., Hawkins, S.R., Chiancone, J., & Whitworth, A. (2008). *The girls study group: Charting the way to delinquency prevention for girls*. Office of Juvenile Justice and Delinquency Prevention, Office of Justice Programs, U.S. Department of Justice, Washington DC.

1. *Race/ethnicity* was creating by combining an item measuring respondents’ race (which included “white,” “black/African American or African-American,” “American Indian,” “Eskimo,” or “Aleut, Asian Pacific Islander,” and “something else”) and an item measuring respondents’ ethnicity (which included “black/African American,” “Hispanic,” “Mixed race (non-Hispanic),” and “non-black/African American/non-Hispanic”) from Round 1 collected in 1997. These two items were cross-examined to create the combined race/ethnicity dummy variables used in this study. Respondents’ race item had 59 respondents with a missing value, of which 43 were identified as “Hispanic” based on respondents’ answer to the ethnicity item. The remaining 16 respondents with a missing value on respondents’ race item identified as mixed race in respondents’ ethnicity item, thus were included in “other” *race/ethnicity*. [↑](#footnote-ref-1)
2. *SES* was created using four items from Round 1 collected in 1997, including the highest education level of each of the following parental figure: biological father, biological mother, residential father, and residential mother. Of 274 respondents who had a missing value on all four of these items, 13 respondents whose total household income level in 1997 was below the poverty line were given zero or “having no parental figure with a college degree or higher” on *SES*. The remaining 261 respondents were deleted from the sample. [↑](#footnote-ref-2)
3. 380 responds whose geography was unknown were coded 0 or rural. [↑](#footnote-ref-3)
4. 783 respondents originally had a missing value on their citizenship status from Round 1 data collected in 1997. For these respondents, the citizenship status from the data from subsequent twelve rounds, where respondents’ citizenship status was available, all of which measured the citizenship status of respondents based on whether or not they were born in the U.S., was used to determine their citizenship status (675 out of 783 identified as citizens born in the U.S. in at least one of the rounds in the subsequent years). Of the remaining 108 respondents whose citizenship status could not be identified using any of the round of data, 29 identified as a naturalized citizens and 67 identified as not a U.S. citizen based on a different follow-up question for citizenship from Round 5 data collected in 2001, thus these respondents were coded zero or as “not born in the U.S.” for *citizenship status*. This leaves 12 respondents with a missing value on *citizenship status* and were also coded zero or as “not born in the U.S.” for *citizenship status*. [↑](#footnote-ref-4)
5. A nominal variable race/ethnicity includes categories “white,” “black/African American,” “Hispanic,” and “other.” [↑](#footnote-ref-5)
6. 82 respondents with a missing value on the highest grade completed in 2015 were eliminated. These respondents were missing information on their education during other rounds. [↑](#footnote-ref-6)
7. 82 respondents with a missing value on the highest grade completed in 2015 were eliminated. These respondents were missing information on their education during other rounds. [↑](#footnote-ref-7)
8. Unlike suspension data, NLSY97 does not include information on delinquency prior to 1997 when the study began. However, for the year 1997, the information on whether or not respondents have “ever” engaged in the six behaviors rather than only during the past 12 months was used. The subsequent 1998-2007 delinquency data are based on the past 12-month engagement in the six behaviors. [↑](#footnote-ref-8)