The Pathway From School to the Criminal Justice System: Predicting School Expulsion and Subsequent Adult Arrest Via A Longitudinal Model

ABSTRACT

Exclusionary discipline policies (Casella, 2003; Christle, Jolivette & Nelson, 2005; Tuzzolo & Hewitt, 2007), academic failure and school dropout are some of the most salient factors in the school to prison pipeline (Christle, Jolivette & Nelson, 2005). While previous research has explored the variability in existing exclusionary discipline policies and identified numerous factors associated with expulsion or criminal justice outcomes among youth, there has been little effort to bring these individual and school level factors together into a single predictive model that is informed by existing criminological theories. In this context, the proposed study will use multiple waves of data from the National Longitudinal Study of Adolescent Health to consider how school discipline policies, demographics, and competing criminological explanations affect the risk of expulsion and then future contact with the criminal justice system. Findings reveal that school-level factors such as severe disciplinary policies, school size, and school type are weak predictors of expulsion and adult arrest. Conversely, measures of social bonding, low self-control, learning, and strain theories show promise in predicting expulsion and arrest outcomes. A history of school disciplinary actions and self-reported delinquency present themselves as the strongest predictors of expulsion and subsequent arrest. Theoretical and policy implications are considered.

THE PATHWAY FROM SCHOOL TO THE CRIMINAL JUSTICE SYSTEM:

PREDICTING SCHOOL EXPULSION AND SUBSEQUENT ADULT ARREST VIA A

LONGITUDINAL MODEL

BY

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ACCEPTANCE

This thesis was prepared under the direction of the candidate's Thesis Committee. It has been approved and accepted by all members of that committee, and it has been accepted in partial fulfillment of the requirements for the degree of Master of Science in Criminal Justice in the Andrew Young School of Policy Studies of Georgia State University.

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Chapter I: Introduction

The severity of school disciplinary policies and procedures has been shown to increase students' risk of school disciplinary outcomes and subsequent contact with the criminal justice system. The literature on the school-to-prison pipeline recognizes that zero tolerance (exclusionary discipline) policies disproportionately affect certain students and formal contact with the criminal justice system disproportionately affects certain individuals (Rocque & Paternoster, 2011). In addition to exclusionary discipline practices, the existing research suggests that academic failure and school dropout are the most salient factors in the school to prison pipeline. This is especially true for minorities and for those with disabilities (Christle, Jolivette & Nelson, 2005). These studies fail, however, to understand how a variety of theoretically relevant individual and school-level characteristics may affect the risk for severe disciplinary outcomes and subsequent school disciplinary problems and then future contact with the criminal justice system.

This area of research is important because although a zero tolerance ideology and corresponding severe disciplinary measures such as expulsion were implemented to deter problem behaviors and distractions in the classroom, they may also conflict with other goals in society. Schools, for instance, are supposed to provide safe and effective learning environments. As Gormon and Pauken (2003) described, schools are primarily charged with developing youth into bright, strong citizens who will in turn be contributing members of society. By increasing the use of expulsion for even those behaviors that may be considered severe, schools are in effect banning youth from a much needed education and possibly from changing problem behaviors forever. Blocked opportunities in the education realm may lead to adult criminality and involvement in the criminal justice system.

To date, there have been very few studies that have sought to model, in a comprehensive and theoretically informed manner, the factors that predict the risks of expulsion and subsequent contact with the criminal justice system. Most studies have shown how severe discipline measures such as suspension/expulsion exacerbate individual-level characteristics such as inattention and impulsivity (Matjasko, 2011), antisocial behavior (Hemphill, et al, 2006) and aggressive behavior (Cairns, Cairns, & Neckerman, 1989), all of which are known risk factors for delinquency. None of these studies, however, follow up by predicting criminal justice contact. Prior research, therefore, tends to explore how select individual risk factors may shape school disciplinary outcomes or how suspension/expulsion may exacerbate risky behaviors. These factors, however, are only part of the link in the pathway from school to arrest, and researchers should reach beyond these isolated measures that tap relevant school-level factors and competing criminological theories when explaining school discipline outcomes and the pathway to subsequent criminal justice contact.

There exists a need for research in this area that adds theoretical and longitudinal dimensions to the current understanding of this problem in order to better inform policy and practice. In particular, there is a need for longitudinal research that considers how competing factors impact expulsion and how expulsion subsequently increases the probability for future criminal justice contact. The current study will address these aforementioned issues by using multivariate models that include individual-level demographic and theoretically relevant factors alongside school-level contextual effects. This analysis will advance our knowledge of individual- and school-level variables that predict expulsion and how a history of school disciplinary problems can affect future contact in the criminal justice system.

Chapter II: Review of Literature

Severe School Discipline Policies

Zero tolerance policies first emerged in the 1980's within the context of the US war on drugs and crime as a means of conveying a severe and certain response to specific forms of abhorrent behavior (Gorman & Pauken, 2003; Henault, 2001; Newburn & Jones, 2007; Stinchcomb, Bazemore, & Riestenberg, 2006) and have been steadily dispersed throughout the country's criminal justice and education entities. The phrase zero tolerance in schools is defined as any "school or district policy that mandates predetermined consequences or punishments for specific offenses" (Stinchcomb, Bazemore, & Riestenberg, 2006, p.126). For example, a school may have in its policy to expel any student who verbally abuses another student or teacher without any consideration of the current situation (literally zero tolerance). Although no direct empirical link has been found, it can be assumed that the philosophy of zero tolerance began to emerge in public schools across America following the passage of Part F- Gun Possession, Section No. 14601 (1994), otherwise known as the 'Gun-Free Schools Act (GFSA) of 1994' (Stinchcomb, Bazemore, & Riestenberg, 2006). Under the GFSA, the federal government mandates that states enact legislation that requires local boards of education to expel for at least one year any student who brings a firearm to school (Gormon & Pauken, 2003; Henault, 2001). This approach calls for predetermined sanctions to be handed down, regardless of the situation, and has since been duplicated to apply to various behavioral transgressions occurring in a school context.

The most commonly used disciplinary sanctions or measures employed in schools today continue to be suspension and expulsion (Chen, 2008; Martinez, 2009), with more than three million students suspended each year in the United States (Stinchcomb, Bazemore, &

Riestenberg, 2006). Whether it is in-school or out-of- school suspension, suspension and expulsion are currently favored for select behaviors over traditional methods of behavior management, with more than 94 percent of this nation's schools using zero tolerance policies (Stader, 2004). Under the zero tolerance approach, teachers and administrators are mandated to strictly enforce school discipline policies when select behaviors are exhibited irrespective of the surrounding circumstances.

There is also evidence of a net widening effect whereby some school officials deliver severe punishment, such as suspension or even expulsion, for all offenses, no matter how minor. For example, Mendez and Knoff (2003) found that the offense that resulted in a greater likelihood for suspensions at every school was disobedience to school staff. In fact, weapons possession only accounted for a small proportion of the total number of suspensions (Mendez & Knoff, 2003).

Although it has been argued that the increase in the use of suspensions and expulsions are due to the dispersion of zero tolerance policies (Henault, 2001), some researchers have shown how suspension and expulsion outcomes are correlated with individual-level characteristics such as race (Vavrus & Cole, 2002), sex, socioeconomic status, disabilities or low academic competence (Christle, Nelson, & Jolivette, 2005). Additional research is needed to test these aforementioned influences alongside other relevant school-level factors and measures that tap competing criminological theories.

Our understanding of exclusionary discipline policies such as suspension and/or expulsion is complicated by the fact that no studies have been able to demonstrate that these policies effectively improve student conduct (Sautner, 2001), nor has research proven that suspension and/or expulsion deters subsequent criminal behavior (Rocque & Paternoster, 2011).

On the contrary, some argue that the misapplication of suspension/expulsion may carry significant consequences for some students (Stader, 2004; Stinchcomb, Bazemore, & Riestenberg, 2006). In a thorough review of the literature on discipline in schools, Sautner (2001) found that the National School Board Association reached some compelling conclusions about the widespread use of suspension and expulsion, namely that suspending/expelling students may actually contribute to delinquency by putting more jobless youth on the streets and labeling them as problem kids for the rest of their school career (Sautner, 2001).

Existing research in this area focuses on the characteristics of the students that severe disciplinary measures target and how these individual risk factors may shape later criminal or delinquent behavior (Laura, 2011; Farmer, 2010; Matjasko, 2011; Rocque & Paternoster, 2011; Smith, 2009). Other researchers focus on how school-level characteristics predict suspension or expulsion outcomes (Christle, Nelson, & Jolivette, 2005), but there appears to be no multi-staged research that measures how individual and school-level factors are related to expulsion and then how expulsion affects the risk for future criminal justice involvement. This link between the independent variables of interest (risk factors) and expulsion and then future contact in the criminal justice system is needed in order to see the full pathway from school to arrest.

For instance, Matjasko (2011) used the National Longitudinal Study of Adolescent Health to explore the relationship between the effectiveness of severe disciplinary policies in reducing life-course offending behaviors. Matjasko (2011) found that severe disciplinary policies do not deter life course offending as measured by criminal arrests. What this study could not show, however, were the dynamics between school disciplinary policies, expulsion, and future criminal behavior (Matjasko, 2011). It would therefore be beneficial to this line of inquiry if an expulsion measure was included in the analysis along with other competing theoretical variables in order to see how school disciplinary policies really affect future offending behaviors.

Other studies have looked at how individual and school-level variables such as race affect disciplinary outcomes or future offending behavior, but they have only explored one link of the school-to-prison pipeline. For instance, one study found that African American children receive more disciplinary infractions than any other race, leading to disengagement from schools (Rocque & Paternoster, 2011). The study did not actually measure whether disengagement predicted future criminal behavior or involvement. Another study found that racial disproportion in the use of suspension and expulsion is strongly related to racial disproportion in referral rates into juvenile justice system (Nicholson-Crotty, Birchmeier & Valentine, 2009). These results held true even after controlling for environmental factors that are known in the delinquency literature for predicting delinquent behavior; however, other competing theoretical explanations and risk factors, such as low self-control and delinquent peers that are known from previous studies to increase the risk for contact with the criminal justice system are missing from this study. Adding other competing etiological factors will help tease out the effects of race on school disciplinary infractions and then future criminal behavior/involvement.

Other studies found that severe discipline policies have negative effects on student behavior (Christle, Jolivette, & Nelson, 2005), such as increasing subsequent antisocial behavior (Hemphill, et al., 2006). What is still unknown is whether antisocial behavior predicts suspension/expulsion and also how suspension/expulsions in turn increase the risk for subsequent future contact with the criminal justice system. Further research is needed to explore these dynamics.

Overall, very few studies have sought to model in a comprehensive and theoretically informed manner the factors that predict the risks of expulsion and subsequent contact with the criminal justice system. There is, however, a rich literature using existing criminological theories to operationalize the pathways to delinquency independent from the effects of school discipline policies. In particular, past studies have utilized strain theory (Agnew, et al., 2002; Agnew & White, 1992; Hoffman & Su, 1997; Piquero & Sealock, 2000), social control theory (Glueck & Glueck, 1950; Hirschi, 1969; Kirk, 2009; Stewart, 2003; Welsh, Greene, & Jenkins, 1999), self-control (Gottfredson & Hirschi, 1990; Pratt & Cullen, 2000) and differential association/social learning theory (Akers, 1990; Burgess & Akers, 1966; Sutherland & Cressey, 1978) to explain youth involvement in delinquency.

Strain Theory

Durkheim (1933) introduced the concept of anomie to explain deviant behavior and how various changes in social conditions can lead to the breakdown of regulatory norms (Durkheim, 1933; Durkheim, 1966). Merton (1938) built on Durkheim's (1933) theory and his articulation of the anomie concept focused specifically on the achievement of positively valued goals and how individuals experience strain when society and its institutions do not provide the means to reach valued cultural goals, or when individuals are unable to gain acceptance in conventional society. Anomie, therefore, is the state of normlessness or lack of social regulation (Akers & Sellers, 2004; Merton, 1938), and when goals in society become over-emphasized, the norms governing their achievement becomes weakened and the individuals under pressure do whatever it takes to reach these goals (Merton, 1938).

In order to describe the types of deviance caused by the restraints imposed by society, Merton (1938) introduced five different modes of adaption that people develop in response to anomic conditions. These adaptations include conformity, innovation, rebellion, retreatism, and ritualism. Conformity occurs when individuals accept goals and reach them in a conventional manner, while innovation occurs when individuals accept society's goals but attain them illegitimately or not in line with institution's norms. Rebels are individuals who reject the whole system and replace them with their own goals, means, and ends. Finally, retreatists are those who give up on any goals and ends while ritualists give up on society's outcomes but retain society's norms with respect to means (Merton, 1938). Overall, the concept of deviance is conceptualized through a framework of opportunities, goals, and norms, and does not link the role of other experiences and strains, and how much strain is needed before individuals adapt through deviance (Cohen, 1965). In other words, "each person seems to work out his solution by himself, as though it did not matter what other people were doing" (Cohen, 1965, p.7). While Merton offered much in the way of conceptual extension to Durkheim's ideas, his framework did not provide much in the way of operational definitions and thus resulted in limited empirical application (Akers & Sellers, 2004).

Agnew (1992) continued to build on earlier strain theories and formulated his own theory known as General Strain Theory. Although macro-level explanations are explored, Agnew's strain theory focuses mainly on micro-level explanations of crime and delinquency by exploring the effect of the individual's immediate social environment and the pressures into crime. According to Agnew (1992), deviance occurs when an individual fails to achieve positively valued goals, positively valued stimuli are removed, or the individual is confronted with negative stimuli.

The first strain, failure to achieve positively valued goals, is the type that is commonly referred to by classic strain and anomie theories (Agnew, 1992). If trying to measure a future goal, strain can be measured in terms of the disjunction between *aspirations* (monetary success) and *expectations* (expected amount of monetary success). If dealing with immediate rather than future goals, Agnew (1992) notes that measuring the disjunction between *aspirations* and *actual achievements* is more appropriate. Although these disjunctions have commonly operationalized strain, they have both received weak empirical support (Agnew & White, 1992). For studying youth, however, it was found in one study to be more appropriate to measure the disjunction between educational aspirations and expectations (Farnworth & Leiber, 1989). Future research should explore the disjunction between educational aspirations and expectations in order to predict whether this type of strain increases the risk for school-based outcomes such as drop-out rates, school-crime, and school-based disciplinary actions such as expulsion.

Second, Agnew (1992) reviewed the literature on stressful life events and concluded that the removal of actual or anticipated positively valued stimuli is another type of negative relationship. The literature reveals, for example, that strain or stress may be a result of the loss of a boyfriend/girlfriend or the death or serious illness of a friend/family member (Agnew, 1992, p.57). Agnew (1992) indicates that the loss of positively valued stimuli may result in delinquency or crime when the individual who experiences this loss tries to retrieve or substitute the lost item. For instance, one may seek revenge or use drugs to relieve the strain. Future research should consider loss of positive stimuli when exploring students who are more likely to commit school crimes and/or be expelled. In addition, researchers should consider the effects of being expelled from the traditional school system as another loss of positively valued stimuli.

The third category of strain involves the inability to legally escape negative or noxious stimuli. Agnew (1992) has found support for the notion that delinquency is found to occur when an individual is trying to escape the negative stimuli, terminate or alleviate the negative stimuli, seek revenge against the source of negative stimuli, and/or mediate the effects of negative stimuli by using illicit drugs (p.58). Examples of negative experiences under this type of strain include a wide range of stressful life events such as child abuse and neglect, criminal victimization, negative relations with peers, family, and school (Agnew, 1992). One of the first empirical tests of General Strain Theory revealed much support for strain variables such as negative life events and life hassles. These categories included events involving family, neighborhood, and school. Strain from adverse school environments, for example, was found to increase the risk for delinquency (Agnew & White, 1992). Additional research is needed, however, to examine whether negative relationships with family, neighborhood, and/or school result in school-based outcomes (such as expulsion) which can lead to subsequent criminal behavior.

As a whole, general strain theory has been used in the literature to explain how crime and delinquency manifest themselves in response to various forms of stress. According to Agnew (1992), youth become strained because there are few opportunities to cope with strain. Moreover, youth who are unable to escape adverse school and family environments are also unable to negotiate successfully with parents and teachers (Agnew, 1992). Strain becomes persistent because youth are constantly reminded of the importance of the school and family in society (Agnew & White, 1992). This strain can cause negative emotions which may be alleviated through drug use (Hoffman & Su, 1997) and other forms of delinquent behavior (Daigle, Cullen & Wright, 2007). Negative coping skills can certainly lead to school-based outcomes such as expulsion and subsequent criminal justice contact. In fact, research has shown that suspension for disobedience towards teachers and drug use in school are the main reasons that students get in trouble at the high school level (Mendez & Knoff, 2003). Further research is needed to show whether strained students are indeed at an increased risk for school-based outcomes such as expulsion and subsequent criminal behavior.

In this current study, expulsion and arrest are operationalized as potential outcomes of strain. A variety of strain measures will be used to examine the relationship between strained students and the risk for expulsion and subsequent criminal justice contact. The existing research shows that students who are strained are also at an increased risk for utilizing negative coping skills such as drug use and delinquent behavior. This type of behavior can certainly put a strained adolescent at a higher risk for expulsion than a non-strained adolescent. Additional research is therefore needed to test the link between expulsion, strain, and future delinquency.

Social Control Theory

The underlying assumption of social control theory is that deviant behavior is inherently attractive, and that people refrain from crime only when something prevents them from participating (Hirschi, 1969). Hirschi (1969) theorized that delinquency (i.e., the opposite of control) is more likely when social and cultural restraints are weakened. Moreover, bonds are especially weakened and youth are more likely to participate in delinquent activities when the transmission of values through vital institutions such as the family and school are blocked (Glueck & Glueck, 1950; Hirschi, 1969; Welsh, Greene, & Jenkins, 1999). Hirschi (1969) articulates four facets of the social bond: attachment to others, commitment to conventional activities or goals, involvement in conventional activities, and belief in the rules of society (Hirschi, 1969). After performing a cross-sectional analysis of the social bond variables, studies have shown each element of the bond to be predictive of delinquency (Hirschi, 1969; Kubrin, Stucky, & Krohn, 2009) and school disorder (Kirk, 2009; Stewart, 2003; Welsh, Greene, & Jenkins, 1999).

The first social bond described by Hirshi (1969) is the extent to which a person is attached to others. Attachment is said to restrain youth from crime because an individual will consider the relationship to conventional others when contemplating participation in delinquent activity. A strong bond between a parent and peers was originally hypothesized to deter delinquent behavior even if the parent or peer were unconventional (Hirschi, 1969). This assumption has proven false in the delinquency literature, as parental attitudes favorable to antisocial behavior actually increased the likelihood of subsequent antisocial behavior (Hemphill, et al., 2006). Studies have also revealed that higher levels of parental supervision decrease the likelihood of suspension, and this does not vary between schools (Kirk, 2009). Moreover, delinquents are actually less likely to identify with conventional peers in the first place. Association with delinquent peers continues to be found by researchers to be directly and positively related to youth involvement in delinquency (Krohn, Thornberry, Rivera, & LeBlanc, 2001). Additional research should consider whether association with delinquent peers and/or parents increases the risk for school-based outcomes such as expulsion and subsequent contact with the criminal justice system.

Furthermore, Hirschi (1969) also found that attachment to school or school staff to be negatively associated with delinquent behavior, with students who are not attached to school or any teachers exhibiting heightened risk for misbehavior. The school is posited to be a salient source of attachment because “students spend a large amount of time with teachers and administrators, who act as role models and teach students socially acceptable behaviors (Stewart, 2003, p.577). Using longitudinal data, researchers have found that school attachment has a weak negative effect on delinquency (Agnew, 1991), while others have found no relationship to misbehavior at all (Stewart, 2003). On the contrary, cross-sectional studies do find individual-level bonds to school, such as attachment to peers and belief in school rules, to be related to school disciplinary problems (Welsh, Greene & Jenkins, 1999) and also delinquency (Smith & Krohn, 1995; Kubrin, Stucky, & Krohn, 2009). In a study focused on elementary school children, more trusting bonds between students and teachers decreased the likelihood of suspension (Kirk, 2009). It stands to reason that students with a lack of attachment are more prone to suspension and expulsion. Additional research is therefore needed that considers the link between lack of attachment to the school/parents and the risk for expulsion and subsequent contact with the criminal justice system.

The second bond, commitment to conventional goals, refers to the extent to which a person refrains from law-breaking behavior. Commitment to conventional goals is said to restrain individuals from criminal activity because criminal behavior can block access to conventional goals (Hirschi, 1969). Furthermore, Hirschi (1969) conceived of educational commitment as one of the three identified "career lines" that were used to describe this concept of conventional goals. Adolescents thought to refrain from participation in delinquent activities because they do not want to compromise their academic achievements (Hirschi, 1969). Students therefore choose to refrain from misbehavior in school in order to avoid any disciplinary actions against them. Disciplinary measures such as suspension/expulsion can certainly compromise ones' educational status, and can ultimately harm their academic achievements.

Researchers have measured educational commitment/status by using a student's grade point average and found that it was negatively related to delinquency (Agnew & Brezina, 1997). Other studies have measured commitment to school and educational aspirations by asking a series of questions such as, "Education is important for getting a job later", and "It is important to work hard for good grades." Results revealed school commitment to be negatively related to school misbehavior (Stewart, 2003). Measuring commitment to conventional goals by a students' effort in school revealed a significant inverse relationship with school disorder (Welsh, Greene, & Jenkins, 1999). Students who exhibit a weak commitment to school have also reported more problems in school which is subsequently predictive of expulsion and future criminal justice contact. Additional research is needed to test these assertions.

The third element of the bond, involvement in conventional activities, is the extent to which a person is so occupied with conventional activities that there is little time to participate in delinquent activities (Hirschi, 1969). Hirschi (1969) therefore proposes that adolescents who are not involved in conventional activities are at a higher risk for participation in delinquent activity (Hirschi, 1969). For instance, not going to school leaves adolescents free to participate in delinquent activities. Hirschi (1969), and other researchers, have found that involvement in school is strongly related to delinquency (Kubrin, Stucky, & Krohn, 2009). Hirschi (1969) originally measured this by time a student spends doing homework.

Other researchers have measured involvement in conventional activities by analyzing participation in school activities (Stewart, 2003; Welsh, Greene, & Jenkins, 1999). Stewart (2003) asked students questions such as, "Do you participate in band, student, government, sports, service clubs, honor clubs, etc.?" Results of this study indicated that school attachment has no significant effect on school misbehavior (Stewart, 2003). Welsh, Greene and Jenkins (1999) also measured this bond by assessing the extent a student participated in extracurricular activities and found that greater involvement in conventional activities may actually increase the likelihood for deviance at school. Although deviance at school was not measured as expulsion, future research should include this measure to see if involvement in conventional activities will have a positive relationship with expulsion.

Finally, the fourth element of the bond, belief, refers to the extent to which believe in the laws or rules set forth by society or its major institutions (Hirschi, 1969). Hirschi (1969) therefore postulates that people refrain from crime when they believe in the laws or rules set forth within their society or institution. Researchers utilizing longitudinal data have found a moderate relationship between these measures to delinquency (Burkett & Warren, 1987; Massey & Krohn, 1986; Paternoster & Iovanni, 1986), while some have found no relationship (Agnew, 1991). There have been studies, however, which found students who believed in school rules to be less likely to misbehave in school, and this bond was one of the strongest predictors of the school-social bond measures (Stewart, 2003; Welsh, Greene, & Jenkins, 1999). As Welsh, Greene, and Jenkins (1999) put it, whatever that individual *believes* they can get away with can be measured as one facet of the bonds in social control theory. If an individual believes in the rules, he or she is assumed to have a positive bond to the school and society, and should be deterred from subsequent disciplinary problems and delinquency (Welsh, Greene, & Jenkins, 1999). Future research should therefore consider whether belief in school rules actually reduces the likelihood of school-based outcomes such as expulsion and subsequent contact with the criminal justice system.

Overall, the existing research shows that each element of the bond is predictive of delinquency (Hirschi, 1969; Kubrin, Stucky, & Krohn, 2009) and school disorder (Kirk, 2009; Stewart, 2003; Welsh, Greene, & Jenkins, 1999). Additional research is therefore needed to test the link between weak bonds, expulsion, and future delinquency.

General Theory of Crime: Low Self-Control

Although social control/bond theory focused on why individuals refrain from crime and disregarded individual–level characteristics (Hirschi, 1969), Gottfredson and Hirschi (1990) introduced in their book “A General Theory of Crime” the idea that some people may be more vulnerable to the “temptations of the moment” (p.87) when presented with criminal opportunities. Low self-control was therefore hypothesized to lead to crime when the opportunity was available. It was also suggested that criminal acts “require no special capabilities, needs, or motivation; they are, in the sense, available to everyone” (Gottfredson & Hirschi, 1990, p.88). What actually reduces the possibility of crime, according to these theorists, is high self-control.

Self-control is said to be related to all types of criminal and analogous behaviors and can explain all individual differences, at all ages, under all circumstances (Gottfredson & Hirschi, 1990). A meta-analysis reveals that self-control can account for both adult or youth criminal behavior and the self control variable also has the ability to predict all types of crime for all age groups (Pratt & Cullen, 2000). Self-control theory should therefore be able to predict non-serious forms of delinquency such as school misbehavior and school sanction outcomes as well as formal criminal justice outcomes.

The source of high self-control is said to be from effective or complete socialization. Self-control was also assumed to be developed or not developed early on in life and that once an individual has developed self-control, the trait remains stable throughout one’s life (Gottfredson & Hirschi, 1990). Researchers studying this assertion with longitudinal data have found that self-control does change over time (Pratt & Cullen, 2000). In fact, later factors are shown to account for desistance or propensity towards crime and these results highlight the importance of incorporating other variables along with self-control (Kubrin, Stucky, & Krohn, 2009; Pratt & Cullen, 2000), an issue this current study will address.

When considering the school as an important source for counteracting low self-control, Gottfredson and Hirschi (1990) claim that modern American schools have difficulty teaching self-control because they often do not have the family's support. When parents do not ensure their children are behaving in school, the children's problems in school are often blamed on the parents' failure to socialize and teach self-control (Gottfredson & Hirschi, 1990). Using this logic, these researchers claim it should be possible to identify those students who have low-self control by his or her school performance and behavior. On the contrary, the school can have a positive effect. Homework, for example, contributes to socialization because it enables students to consider the consequences of not doing their homework (Gottfredson & Hirschi, 1990).

As mentioned above, opportunity for deviance varies by time and across space and individuals, but those with high self-control have the ability to resist that temptation because they have a greater ability to calculate the consequences of crime (Gottfredson & Hirschi, 1990). Self-control leads to delinquency, therefore, when there are factors affecting the calculation of the consequences of deviant behavior. In other words, "the impulsive or short-sighted person fails to consider the negative or painful consequences of his acts; the insensitive person has fewer negative consequences to consider; the less intelligent person also has fewer negative consequences to consider (has less to lose)" (Gottfredson & Hirschi, 1990, p.95). These same traits are also proposed to affect achievement of goals, and can destroy educational and occupational achievement (Gottfredson & Hirschi, 1990).

A lack of self-control can therefore cause individuals to have differences in attitudes towards school than those who have higher-levels of self-control (Hirschi, 1969). For instance, students who have a positive attitude towards school are more likely to have higher levels of self control and thus less likely to receive a school sanction or get into trouble with the law (Gottfredson & Hirschi, 1990). Low self-control therefore should manifest in more school disciplinary problems such as expulsion and then contact with the criminal justice system.

A meta-analysis of the theory by Pratt and Cullen (2000) reveals that low self-control is related to general law violations, self-reported delinquency, and future criminal convictions (p.934). These results are still found after controlling for competing theoretical explanations such as strain, social bond, and differential association/learning theories (Pratt & Cullen, 2000).

Differential Association

Youth participation in delinquent activities can also be explained using learning-based theories such as Sutherland's (1934) theory of differential association. This theory states that the learning of criminal definitions typically occurs in peer groups, and one's interpretations of our peer's behavior is the key to whether one chooses to participate in delinquent activity (Sutherland, 1934; Sutherland & Cressey, 1978). The underlying assumption of this theory assumes individuals conform to the rules or participate in criminal behavior depending on the criminality of those individuals' peer groups. Specifically, it is the exposure to the definition, not the person (Sutherland, 1934; Sutherland & Cressey, 1978).

Key concepts from this theory can be measured by asking youth whether they have delinquent peers, believe any rule or law violation is okay, or whether they have respect for authority figures such as teachers or police (Kubrin, Stucky, & Krohn, 2009). Students are thus assumed to participate in delinquent activities if one does not believe in the school's policy or the law itself.

Differential association was later refined and extended into social learning theory by Burgess and Akers (1966). Seeking to more precisely operationalize the learning mechanism, social learning theory places an emphasis on how definitions favorable to crime are learned and how the principles of operant conditioning can aid in explaining the internalization of the definitions (Burgess & Akers, 1966). Akers (1998) presents four main facets to the theoretical model: definitions, differential association, differential reinforcement, and imitation. Akers (1998) went on to state that a student's rule-abiding and law-abiding behavior will be most like that of their peers. Under this revised social learning theory, "instead of friends causing delinquency…youth who have delinquent friends are more likely to be delinquent themselves" (Kubrin, Stucky & Krohn, 2009, p.148). In other words, birds of a feather flock together.

Overall, longitudinal research has found that this revised theory can be used to describe any minor type of crime and deviance, and that association with delinquent peers is related to youth participation in delinquent activities (Kubrin, Stucky & Krohn, 2009). Due to the difficulty in measuring whether an individual learns criminal behavior from delinquent peers or has delinquent peers because they are already delinquent themselves, most researchers operationalize social learning measures bywhether an individual hangs out with others who participate in misconduct (Beaver & Wright, 2005; Daigle, Cullen, & Wright, 2007). Daigle and colleagues (2007) found that a greater number of delinquent friends are positively correlated with delinquency.

Furthermore, it is possible that once a student becomes suspended, they continue to follow the postulated temporal sequence upon which social learning theorists believe individuals follow (Akers & Sellers, 2004). What this means is that individuals choose further interactions with others who are also suspended/expelled from school. Consider those students who are suspended/expelled from school and are banned from traditional school activities. These same students may also be enrolled in an alternative school and thus built relationships with others in a similar position. Alternative schools are known to house juvenile delinquents, and one may be at risk for learning new definitions favorable to crime and delinquency.

Other Predictors of Expulsion and Criminal Justice Contact

Previous research has also shown other consistent predictors of juvenile delinquency, school misconduct, and criminal justice contact. As such, several individual and school-level demographic measures will be analyzed in this study that has been shown to be related to delinquency in the school to arrest pipeline. Individual demographics include race, sex, and age while school-level demographics include school type, school size, region, and urbanity. For instance, the relationship between school outcomes and future criminal justice contact for Blacks has been the subject in much of the school-to-arrest literature (Rocque & Paternoster, 2011). Second, sex is another important demographic factor to include because the literature has shown that females are less involved in school misconduct and delinquency than males (Welsh, Greene, & Jenkins, 1999). Third, age is important to consider because researchers have found that age affects delinquency and crime whether or not major life events occur such as getting married or leaving school and that its effects on crime are independent of other demographic measures of crime (Gottfredson & Hirschi, 1990). Finally, the school-level demographics such as school type, school size, and school location are important to consider because the literature has shown that school environment can affect school-based outcomes and subsequent criminal justice contact (Matjasko, 2011).

Statement of the Hypotheses

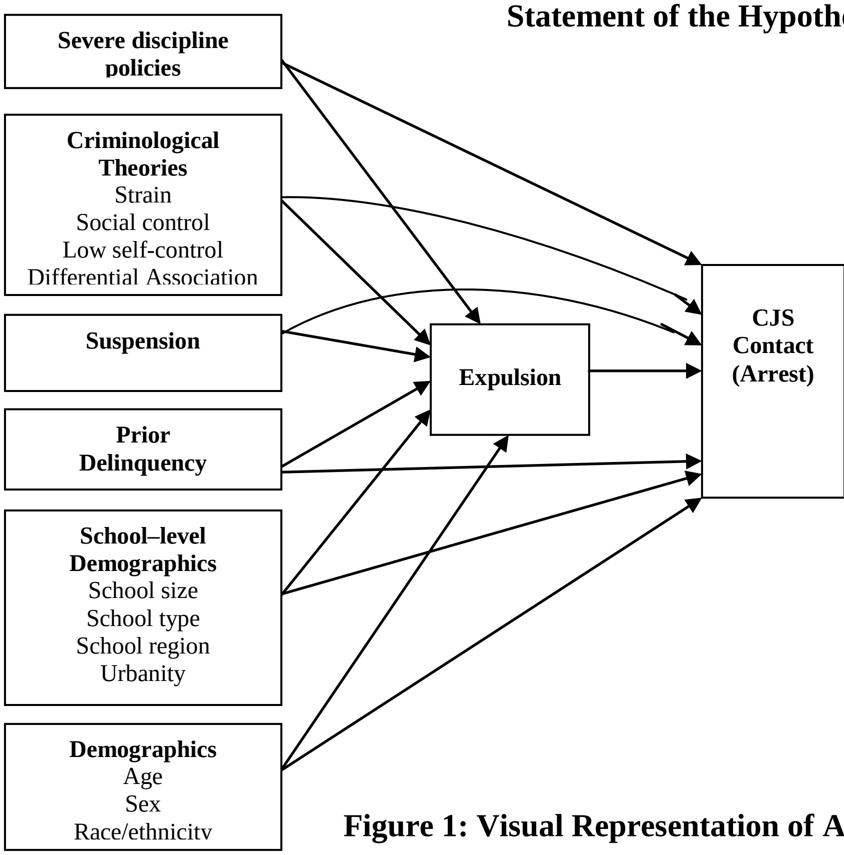

Figure 1: Visual Representation of Analytical Model

There are several hypotheses in this current study. A visual representation of these hypotheses can be seen in **Figure 1**.

Hypothesis 1: Severe school discipline policies increase the risk for expulsion.

As illustrated in the model, this study predicts a direct relationship between severe discipline policies and expulsion. The first hypothesis states that severe school discipline policies increase the risk for expulsion. Severe school discipline policies, or zero tolerance philosophies, mandate predetermined consequences or punishments for specific offenses (Stinchomb, Bazemore, & Riestenberg, 2006). As it was mentioned earlier, 94 percent of this nation’s schools currently utilize zero tolerance policies for one or more problem behaviors (Stader, 2004), with the most commonly used disciplinary sanctions or measures being suspension or expulsion (Chen, 2008; Martinez, 2009).

Furthermore, severe disciplinary policies and severe sanctions such as expulsion have not been found to deter future offending (Matjasko, 2011) and some argue that the misapplication of expulsion may carry significant consequences for some students (Stader, 2004; Stinchcomb, Bazemore, & Riestenberg, 2006). If a student is in need of positive moral and social support and growth, then the school is the place to get those. If a student is excluded from school for the very behavior that needs attention and positive development from teachers, then the problem behavior is essentially ignored and expulsion can become the proxy that leads individuals towards future criminal behavior.

Hypothesis 2: Expulsion leads to subsequent future criminal justice contact (adult arrest).

In line with the logic that each of the theoretical models and control variables is related to both expulsion and future criminal justice contacts, the second hypothesis states that expulsion serves as a predictor of future criminal justice contact. This relationship is illustrated in **Figure 1**.

Hypothesis 3: Individuals who are under strain are at an increased risk for expulsion and subsequent contact in the criminal justice system.

As can be seen in **Figure 1**, strain is predicted to have a direct relationship with both expulsion and contact with the criminal justice system. In other words, individuals who are under strain are at an increased risk of expulsion and/or risk for contact in the criminal justice system. Under the assumptions of general strain theory, stress causes negative emotions, such as anger, which in turn increases the risk for coping behaviors (Agnew, 1992). As it was previously mentioned, negative life events cause negative emotions which become released through delinquent acts and misconduct. Thus misconduct may increase the risk of expulsion and/or contact with the criminal justice system.

Moreover, Agnew (1992) has found that aversive school environments have a direct effect on delinquency. Schools can become a negative environment which causes negative emotions. Students who have been expelled may especially regard the school and its administrators negatively. These negative emotions can in return be alleviated through drug use and other forms of delinquent behavior (Daigle, Cullen, & Wright, 2007).

Hypothesis 4: Adolescents with weak social bonds are at an increased risk for expulsion and subsequent contact with the criminal justice system.

Note that in **Figure 1**, social bond measures are predicted to have a direct relationship with expulsion and criminal justice contact outcomes. Hirschi (1969) found that attachment to parents, peers, school or school staff is related to delinquency. It stands to reason that this should hold true for both expulsion and criminal justice contact. There have certainly been studies that link the facets of the social bonds to school misbehavior and delinquency. Studies have shown higher levels of attachment in the form of parental supervision to decrease the likelihood of suspension, and this does not vary between schools (Kirk, 2009). Also, attachment to delinquent peers continues to be proven directly and positively related to youth involvement in delinquency (Krohn, Thornberry, Rivera, & LeBlanc, 2001).

Furthermore, students who do not believe in school rules have been shown to be at an increased likelihood for school disciplinary problems (Stewart, 2003; Welsh, Greene & Jenkins, 1999) and delinquency (Smith & Krohn, 1995; Kubrin, Stucky, & Krohn, 2009). Lastly, studies have shown school commitment to be negatively related to school misbehavior (Stewart, 2003). This hypothesis is supported under the assumptions of social bond theory because individuals with weak social bonds are indeed found to be at an increased risk for misbehavior and delinquency (Akers & Sellers, 2004).

Hypothesis 5: Adolescents with low self control are at an increased risk for expulsion and subsequent contact with the criminal justice system.

As illustrated in **Figure 1**, self-control is predicted to have a direct relationship with expulsion and criminal justice contact. Hirschi & Gottfredson (1990) proposed that individuals with high self-control have the ability to resist the temptation towards misbehavior because they have a greater ability to calculate the consequences (Gottfredson & Hirschi, 1990). Self-control therefore leads to expulsion and criminal justice contact when there are factors affecting the calculation of the consequences of deviant behavior.

Hypothesis 6: Individuals with delinquent peers will be at an increased risk for expulsion and subsequent contact with the criminal justice system.

Note that in **Figure 1**, measures associated with social learning/differential association theories are predicted to exhibit a direct relationship with expulsion and criminal justice contact. In line with the assumptions of differential association/learning theory, it is expected that students with delinquent peers will report greater levels of school discipline and subsequent criminal justice contact. Under this theory, students are assumed to participate in delinquent activities with peers if one does not believe in the school's policy or the law itself (Sutherland, 1947). Under severe school discipline policies, it stands to reason that participation in delinquent activities in the school will lead to expulsion.

Chapter III: Methods

Data Collection

The National Longitudinal Study of Adolescent Health (ADD Health) is a nationally-representative school-based sample of adolescents in the United States who are drawn from grades 7-12 and followed through young adulthood (Carolina Population Center, 1994). The data capture respondents' social, economic, psychological and physical well-being, and include contextual data on the family, neighborhood, community, school, friendships, peer groups, and romantic relationships (Carolina Population Center, 1994). The aforementioned measures allow researchers to study how social environments, behaviors, and biological traits in adolescence are linked to health and achievement outcomes in young adulthood (Carolina Population Center, 1994). The current study will focus on how select characteristics and behaviors represented in the data are linked to school-based sanctions and future criminal justice outcomes in young adulthood.

ADD Health data collection efforts began in 1994-1995 with Wave I and all surveys were completed by 2007-2008, ending with the Wave IV in-home survey. Altogether, the surveys were administered to adolescents via four waves of interviews/surveys and took place in the selected schools or selected youth's homes depending on survey type. Note that the goals of the current study are best pursued through consideration of measures gathered via the youth in-home surveys at Waves I, III, and IV. In addition to the adolescent surveys, the ADD Health protocol includes data on the participating schools that was gathered via a survey of school administrators at Wave I. The self-administered questionnaires of administrators capture school policies and procedures, teacher characteristics, health-service provision or referral, and student body characteristics. Several measures from this facet of the ADD Health data set are utilized in the current study to consider how school discipline policies and school demographics affect school-based and future criminal justice outcomes.

Participating schools and the corresponding students included in the ADD Health survey were selected through a database called Quality Education Data, Inc. First, a list of over 26,000 U.S. High Schools were sorted based on enrollment size, school type, region, location, and enrollee race (percent white) and then divided into appropriate groups for sampling. Next, 172 schools were systematically selected from these groups (Chantala, 2006). Where originally sampled schools chose not to participate at other waves, each school that declined was replaced by a systematic matching procedure (Carolina Population Center, 1994). The above mentioned sampling procedures were pursued to maximize the likelihood that the 172 participating schools would be representative of schools across the nation and by extension that the participating students from these schools would be representative of students in the United States. Despite these systematic sampling procedures, subsequent analysis revealed that there were some statistically significant demographic differences between the ADD Health survey sample and the overall national sample of adolescents across schools nationwide (Chantala, Kalsbeek & Andraca, 2005). For instance, subjects in the sample were more likely to be white youth from suburban schools. Students in the sample are also less likely to have attended a school in the Northeast United States and more likely to attend a school in the South.

Current sample

For purposes of this analysis, the current study will consider the In-Home questionnaires from Waves I, III, and IV of the ADD Health survey. Responses from the In-School interviews are excluded for the purposes of this analysis because students who are absent on the day the survey is administered in school may be significantly different than students who are present. For instance, students who are not in school on any given day (besides those who are really sick) may be described as truant, suspended, having been expelled or dropped out of school, or are in some type of contact with the criminal justice system (Kubrin, Stucky, & Krohn, 2009, p.160).

The Wave I In-Home questionnaire data includes students who were in grades 7 through 12 of the 172 targeted schools between April 1995 and December 1995 (Carolina Population Center, 1994). Participants from Wave I's In-Home Survey were randomly selected so that approximately 200 adolescents were drawn from each of the 172 schools. The Wave I In-Home Survey's overall response rate was 78.1 percent (Kalsbeek, Yang, & Agans, 2002) with the final core sample consisting of 20,772 adolescents. The current study is interested in responses from this particular facet of the ADD Health database because it includes theoretical measures and individual demographics relevant for determining how they affect school-based and future criminal justice outcomes.

The current study will also utilize measures from Wave I's administrative school survey. In this section, administrators from the 172 participating schools completed a questionnaire which captured a wide range of measures including school demographics and formal discipline policies. These factors are of direct relevance to the current inquiry into factors predictive of school expulsion and subsequent criminal justice contact. Also utilized here are responses from Wave III surveys, which were conducted between July 2001 and April 2002. The Wave III In-Home Survey had a response rate of 77.4%, which included 15,197 participants from Wave I who could be located after six years and re-interviewed for Wave III's survey. Included in this group were respondents who were in prison or jail. Respondents who could not be re-located were excluded from Wave III (Carolina Population Center, 1994). In this section, students from the participating schools completed a questionnaire which captured the school-based outcome:

having ever been expelled. Expulsion was measured at this wave in order to control for temporal order. For instance, demographics, discipline policies, and criminological measures are measured at Wave I. Using expulsion at Wave III ensures that expulsion comes after these measures but before arrest at Wave IV.

Finally, the current study utilized measures from Wave IV's In-Home survey, which was conducted from January 2008–February 2009. Overall, the response rate at Wave IV was 80.3 percent, which included 15,701 respondents who were all original participants from Wave I and III's In-Home Survey (Carolina Population Center, 1994). Taken as a whole, this sample accurately represents the original sample from Wave I (Chantala, Kalsbeek & Andraca, 2005). This fact is particularly important when analyzing the life trajectories of individuals and how certain measures and outcomes throughout an individuals' life affects the risk for future outcomes. Of particular interest here was the measure of self-reported criminal arrest, as the current study is specifically interested in how characteristics and behaviors at Wave I and outcomes at Wave III will affect the risk of adult arrest at Wave IV.

The above detailed sampling approach shows there are minimal threats to external validity in this study. For one, using the In-Home Survey for Waves I and III provides the chance to capture respondents who may have otherwise been excluded if the In-School questionnaire was instead utilized. Second, sample members are generalizeable across the current study's population of students as well as the population of students in the United States (Carolina Population Center, 1994). Finally, the final sample size does not appear to be an issue. Even with missing data, there are enough respondents in each category of interest. With this in mind, the current study's original sample size was unavoidably reduced in the final analyses due to missing data from 20,772 to 11, 709. Responses that did not fit into any substantive category (i.e, did not respond to question or did not know the answer) were treated as missing data, as were respondents who were arrested prior to age 18.

There were also minimal threats to internal validity. The response rate at Wave IV was 80.3 percent, which included 15,701 respondents who were all original participants from Wave I and III's In-Home Survey (Carolina Population Center, 1994). Attrition is therefore not an issue in this study.

Measurement

Severe discipline policies, measures of several criminological theories, prior delinquency, and demographic variables were included as predictors of school expulsion and subsequent criminal justice contact. The analysis includes independent variables from traditional criminological theories such as strain theory, social control theory, a general theory of crime (low self-control), and differential association, as well as various individual- and school-level demographics. Responses to predictor variables such as severe discipline policies, criminological theories, demographics, and prior delinquency will be analyzed at Wave I. Expulsion will be analyzed at Wave III and criminal justice contact (adult arrest) will be analyzed at Wave IV in order for the best opportunity to understand the temporal nature of expulsion for each student.

Dependent variables.

Expulsion. The current study is interested in those students who have been formally banned from traditional school due to expulsion. When a student is expelled, they are banned from public or private school indefinitely; most are faced with the choice of enrolling in an alternative school or dropping out altogether (Lehr, Tan, & Ysseldyke, 2009). Expulsion is thus of direct relevance to the current inquiry into whether school-based outcomes are predictive of subsequent criminal justice contact. Although studies have found expulsion alone will not allow for a reliable analysis since the rate is too low for most schools (Nicholson-Crotty, Birchmeier, & Valentine, 2009), this concern is not an issue in the current study because overall, there were over 1,000 students out of the 20,772 included in Wave I-IV of the Add Health study who responded yes to having ever been expelled. As mentioned, respondents in Wave III In-Home survey were asked "Have you ever been expelled from school" (expelled). Responses will be recorded as dichotomous variables with 0 meaning "no" and 1 meaning "yes." Those 19,000+ who are not expelled will be used as the control group for further analysis of subsequent contact with the criminal justice system as measured by formal arrest.

Contact with criminal justice system (arrest). The current study seeks to determine the degree to which expulsion prior to Wave III affects self-reported responses to an official criminal justice-based outcome at Wave IV. Of particular interest in this regard are respondents who self-report having ever been subject to a formal arrest incident. Other studies interested in school-based outcomes and future arrest have also operationalized criminal justice contact by measuring arrest as a binary measure, having been arrested at any point in the past (Kirk, 2009). Respondents in the current study were asked, "Have you ever been arrested or taken into custody by the police" (arrested) and "How many times were you arrested before age 18." Individuals who responded they had been arrested one or more times before the age of 18 (N= 765) were excluded from the analysis. This step was necessary in order to control for temporal order and ensure that arrest comes after expulsion. Controlling for arrests prior to age 18, the number of respondents who answered yes to having been arrested at Wave IV went from 4,395 to 3,630. This represents almost 25 percent of the overall Wave IV sample.

Measuring formal adult arrest is appropriate for the purposes of this analysis because this study is concerned if the young adult came into contact with the criminal justice system for some type of criminal behavior after expulsion. Specific criminal trajectories are beyond the scope of this analysis.

Independent variables.

In order to examine the predictive effects of school discipline policies and criminological theories on expulsion and subsequent contact with the criminal justice system, variables that measure severe school disciplinary measures were created along with independent variables from four theoretical perspectives variables.

Severe school discipline. Since the implementation of zero tolerance policies, most schools now have graduated discipline policies that mandate predetermined consequences, such as expulsion, for a specific offense (Stinchcomb, Bazemore, & Riestenberg, 2006). The current study is particularly interested in how severe discipline policies in schools affect the risk for expulsion and then subsequent contact with the criminal justice system. In order to capture the severity of discipline climate in the selected 172 schools, the current study followed the guidance of previous research by examining discipline policies for the first offense of the following twelve behavioral infractions derived from the Wave I School Administrators Survey (Matjasko, 2011): cheating, fighting, injuring another student, possessing alcohol, possessing an illegal drug, possessing a weapon, drinking at school, using an illegal drug at school, smoking at school, verbally abusing a teacher, physically injuring a teacher, and stealing school property.

For each specific offense, school administrators were asked to report the type of punishment mandated for the first time a student is found committing that offense. They had the following response options: 0=no policy, 1=verbal warning, 2=minor action, 3=in-school suspension, 4=out-of-school suspension and 5=expulsion. A final severe policy measure was created by summing a school's response to all 12 offenses. The scale thus ranges from 0 to 60:

Schools with higher scores indicate a more severe disciplinary climate at the school. It is expected that schools with more severe discipline policies will have more students report being expelled and subsequently arrested than schools with less severe policies.

Strain theory. According to general strain theory, deviance occurs when an individual fails to achieve positively valued goals, positively valued stimuli are removed, or when the individual is confronted with negative stimuli (Agnew, 1992). Strain measures were analyzed in this study to determine if students who had ever been expelled or arrested experienced any type of strain prior to the infraction. Using the guidance of previous research, this study included strain measures of the most uncontrollable and undesirable events such as suicide attempts among family and friends (Cheung & Cheung, 2010; Hoffman & Su, 1997). Specifically, three separate strain measures were constructed in order to capture a variance of uncontrollable and undesirable events: Strain from suicide, strain from parental rejection/coercion, and strain from disjunction between educational aspirations and expectations. Unfortunately, a composite strain measure was not possible in this study due to low reliability of the variable (alpha of composite strain measure was 0.151). Individually, each of the three strain measures had greater internal consistency.

The first strain measure from Wave I's In-Home Survey captured strain from the presence of negative stimuli: suicide attempts among family and friends. Respondents were asked "Have any of your friends tried to kill themselves during the past 12 months" and "Have any of your family members tried to kill themselves during the past 12 months." Response options were either "Yes" (1) or "No" (0). Students who answered yes to *either* question were labeled as "strained by suicide" (1) and students who answered no to both questions were labeled as "not strained by suicide" (0).

The second strain measure taps the concept of parental rejection/coercion, a type of strain shown to induce criminal behavior (Cheung & Cheung, 2010; Kubrin, Stucky, & Krohn, 2009). The following two questions were summed together to create this variable: In the past 4 weeks… "Have you had a serious argument about your behavior with your mother" and "Have you had a serious argument about your behavior with your father." Response options were either "Yes" (1) or "No" (0). Students who answered yes to *either* question were labeled as "strained by parental rejection/coercion" (1) and students who answered no to both questions were labeled as "not strained by parental rejection/coercion" (0).

The final strain measure from the Wave I In-Home Survey included the disjunction between educational aspirations and expectations. This measure was included because previous research has found this disjunction significant for all of the delinquency measures except nonserious utilitarian offenses (Farnworth & Leiber, 1989). Following recent studies which have measured this disjunction using the ADD Health data set (Daigle, Cullen, & Wright, 2007), the current study will use the following questions: "How much do you want to go to college" and "How likely is it that you will go to college." The surveyed adolescents could respond on a 5-point scale, with 1 being low (not very likely) and 5 being high (very likely). Respondents who rated their desire to attend college as being higher than the likelihood that they will attend college were determined to be experiencing strain (strained by disjunction) and were given a value of 1. Those respondents whose desire was the same or less than their estimated likelihood were coded as 0 for this strain measure. It is expected that students who have experienced any of the aforementioned types of strain are at a greater risk for expulsion and subsequent arrest.

Social control theory. According to social control theory, individuals with weak bonds are at an increased risk for delinquent behaviors (Hirschi, 1969). The current study utilized the available measures in the ADD Health data set that serve to operationalize three out of four bonds described in Hirschi's (1969) statement of the theory: involvement, commitment, and attachment. The belief bond was unable to be captured in this analysis because no available and reliable measures were available in the ADD Health dataset. A composite measure of the social bond concept was assembled as follows.

The involvement concept seeks to capture whether an individual participates in conventional activities or not. According to the theory, less involvement in conventional activities is strongly related to delinquency (Hirschi, 1969). The current study followed the guidance of previous research (Daigle, Cullen, & Wright, 2007) and operationalized the involvement concept using the following questions from Wave I In-Home Surveys: "During the past week, how many times did you play an active sport, such as baseball, softball, basketball, soccer, swimming, or football?" and "During the past week, how many times did you watch television or videos, or play video games?" Adolescents were able to respond on a scale from 0 to 3 with a score of 0 coded as "not at all," 1 as "one or two times," 2 as "three or four times" and a score of 3 as "five or more times." Higher scores reflected greater involvement in conventional activities (involvement).

According to control theory, commitment to conventional goals is assumed to restrain individuals from criminal activity because criminal behavior can block access to conventional goals (Hirschi, 1969). For youth, educational commitment and goals are used to operationalize this concept. Adolescents are hypothesized to refrain from participation of delinquent activities because they do not want to compromise their academic achievements (Hirschi, 1969). Following the guidance of previous research, the current study enlists a measure of student GPA to operationalize one's commitment to educational goals (Agnew and Brezina, 1997; Daigle, Cullen & Wright, 2007). Respondents were asked at Wave I of the In-Home Surveys, "At the most recent grading period/last grading period in the spring, what was your grade in English or language arts?" Responses could range from A to D or below a D and were coded as: D or below = 1, C = 2, D = 3, and A = 4. Higher scores reflected greater commitment to educational goals (commitment).

Finally, the attachment concept should capture attitudes towards parents, teachers, or peers at school. Hirschi (1969) proposed that attachment to school or school staff can enhance levels of control, thus leaving a student who is not attached to school or any teachers is at a higher risk for delinquent behavior. The current study used the following questions from Wave I In-Home Surveys to assess attachment to peers: "You feel close to people at your school," and "You feel like you are part of your school," and "You are happy to be at your school." The response options for these measures were on a likert scale that ranged from 1 = strongly disagree to 5 = strongly agree. Attachment to parents was measured by asking respondents, "How close do you feel to your mother" and "How close do you feel to your father" (attachment). The response options for these measures were on a Likert scale that ranged from 1 = not at all to 5 = very much. Higher scores reflected greater attachment to conventional society (attachment).

A composite social bond measure (social bond) was derived by adding together the above mentioned six items to create a scale from 0-35, with higher scores reflecting stronger bonds to conventional society. It is expected that students with weak social bonds will have a greater risk for expulsion and subsequent arrest.

Low self-control. Hirschi and Gottfredson's (1990) *General Theory of Crime* introduced the idea that some people are more vulnerable to the "temptations of the moment" (p.87) when presented with criminal opportunities. According to the theory, what actually reduces the possibility of crime is high self-control. Further, the theory proposes that low self-control is related to all types of criminal and conventional behaviors and can explain all individual differences, at all ages, under all circumstances (Gottfredson & Hirschi, 1990). Self-control should therefore be able to predict both delinquent and non-serious forms of delinquency such as school misbehavior and school sanction outcomes as well as subsequent contact with criminal justice authorities for alleged law violations.

Previous research that measured self-control found that self-control's effect size remains stable regardless of whether it is measured by a behavioral or attitudinal measure (such as impulsivity), Grasmick and colleagues (1993) scale or any other scale developed by researchers in this area (Pratt & Cullen, 2000). Considering these findings and following the guidance of other researchers that utilized the ADD Health data set to measure self-control (Daigle, Cullen, & Wright, 2007; Matjasko, 2011), the currently study assembled a composite measure of self-control that captured a student's impulsivity for decision making.

The following four survey questions were used from Wave I's In-Home Survey (self-control): "When making decisions, you generally use a systematic method for judging and comparing alternatives;" "When you are attempting to find a solution to a problem, you usually try to think of as many different ways to approach the problem as possible;" "When making decisions, you usually go with your gut feeling without thinking too much about the consequences of each alternative;" and "When you have a problem to solve, one of the first things you do is get as many facts about the problem as possible." Responses were based on a Likert scale from 1= strongly agree to 5= strongly disagree. Responses to all answers were summed to create a scale that ranges in value from 0-20, with higher scores indicating low self-control (low self-control). Students with low self-control are expected to be at a greater risk for expulsion and subsequent arrest.

Differential association. Sutherland's (1934) theory of differential association states that the learning of criminal definitions typically occurs in peer groups, and one's interpretations to his or her peers' behavior is the key to whether one chooses to participate in delinquent activity (Sutherland, 1934; Sutherland & Cressey, 1978). The underlying assumption of this theory is that individuals conform to the rules or participate in criminal behavior depending on the criminality of those individuals' peer groups (Sutherland, 1934; Sutherland & Cressey, 1978). Previous research has indeed found that association with delinquent peers is related to youth participation in delinquent activities (Kubrin, Stucky & Krohn, 2009). The current study is therefore interested in whether a student who is exposed to delinquent peers will consequently participate in delinquent activities that will in turn affect school-based outcomes and subsequent contact with the criminal justice system.

Considering the concepts of differential association and following the guidance of other researchers who captured this concept by measuring the level of delinquent peer exposure among respondent students (Beaver & Wright, 2005; Daigle, Cullen, & Wright, 2007), the current study used the following questions from Wave I's In-Home Survey: "Of your 3 best friends, how many smoke at least 1 cigarette a day," and "Of your 3 best friends, how many drink alcohol at least once a month," and "Of your 3 best friends, how many use marijuana at least once a month." The responses to these 3 questions were summed to create a scale that ranges in value from 0 to 9, with higher scores reflecting more friends involved in delinquent activity (delinquent peers). Students who reported larger numbers of best friends who are delinquent are expected to have a higher probability of expulsion and subsequent arrest.

Control measures. Several individual and school-level demographic measures were drawn from Wave I's In-Home Survey in order to account for other predictor variables that have been shown to be related to delinquency in the school to arrest pipeline. ***Suspension*** and ***prior delinquency*** at Wave I were used as control measures given that prior misbehavior/delinquency is a known risk factor in the literature for future criminal behavior (Nagin & Paternotser, 1991). Other control measures included in this study were individual-level demographics such as race, age, and sex while school-level demographics included school type, school size, region, and urbanity.

Suspension was measured by asking students whether they had ever been suspended. Students suspended at Wave I are coded as 1 while those were not suspended are coded as 0. P***rior delinquency*** was determined by scaling a series of 15 delinquency questions asked in Wave I's In-Home Survey. The questions included the following: "In the past 12 months, how often did you… "paint graffiti on someone else's property or in a public place," "deliberately damage property that didn't belong to you," "lie to your parents about your whereabouts," "shoplift," "get into a serious physical fight," "seriously injure someone," "run away from home," "steal a car," "steal something worth more than $50," "burglarize a building or home," "used or threatened to use a weapon to get something from someone," "sell drugs," "steal something worth less than $50," "take part in a group fight," and "act loud/rowdy in a public place." Response options ranged from 0 to 3, with 0 indicating "never," 1 as "one or two times," 2 as "three or four times," and 3 as "five or more times." Responses to the 15 prior delinquency items were summed to create the final overall prior delinquency scale. The scale ranged in value from 0-45, with higher scores reflecting greater frequencies in prior delinquent activities (prior delinquency). It is expected that students who score higher on the delinquency scale will be at an increased risk for expulsion and future arrest.

The link between prior and future misbehavior/delinquency is certainly important for this study to consider, therefore the aforementioned measures were assembled with careful consideration for previous research. For instance, the current study's delinquency scale can be deemed reliable and valid because previous research has shown that "results of self-report delinquency research are not dependent upon the particular method used in collecting the data" (Elliot, 1982, p.535). Using a self-report survey thus should not affect this study's findings.

Further, while previous research has shown "ever variety scales to generally outperform scales with restricted content and time frames" (Elliot, 1982, p.536), some studies have found that "ever variety measures have little value in longitudinal research" (Elliot, 1982, p.536). In this study, for instance, it is more appropriate to consider how often one participated in delinquent activities over a certain period of time because it may be that the more delinquent activities one participates in, the more it affects the risk for expulsion and subsequent criminal justice contact. Moreover, this scale has more than ten measures, and research has shown "subscales with as few as ten items do almost as well in correlating with outside variables as their 63-item global scale" (Elliot, 1982, p.536).

As mentioned, the current study also examined individual-level factors. Regarding race, the relationship between school outcomes and future criminal justice contact for African Americans has been the subject in much of the school-to-arrest literature (Rocque & Paternoster, 2011, p.635). For instance, African Americans and other minorities have been shown to be at an increased risk for academic failure because of their socioeconomic background and also because academic success is viewed as "being too white" (Rocque & Paternoster, 2011). The relationship is therefore important to consider in the current study. In the current study, ***race*** is a dichotomous variable that will measure whether a student is white (1) or non-white (0). In this study, non-whites are expected to be at an increased risk for expulsion and future arrest.

Sex is another important demographic factor to include in the current study given that the literature has shown that females are involved in less school misconduct and delinquency than males (Welsh, Greene, & Jenkins, 1999). ***Sex*** is a dichotomous variable asked at Wave I that measures whether respondents are either female (1) or male (0). In this study, males are expected to be at an increased risk for expulsion and future arrest.

Further, age is another important demographic to measure because researchers have found that age affects crime whether or not major life events occur such as getting married or leaving school and that its effects on crime are independent of other demographic measures of crime (Hirschi & Gottfredson, 1983). The current study will therefore include age in the final model in order to show any significant effects of age on school-based and criminal justice outcomes holding all other variables constant. ***Age*** is measured at Wave I in the current study by age in years.

Finally, the current study controlled for school-level demographics using responses from Wave I's School-Administrator Survey because the literature has shown that school environment can affect school-based outcomes and subsequent criminal justice contact (Matjasko, 2011). For example, previous research has found that school characteristics such as urbanity (urban versus rural) and school size (total enrollment) were significantly related to rates of victimization against teachers (Gottfredson, Gottfredson, Payne, & Gottfredson, 2005). This is important to consider because in the ADD Health data set, 105 of the 172 participating schools in the study expelled students who physically abused a teacher, first offense. It may be found that more schools in urban locations have stricter policies against physically abusing a teacher because rates of victimization against teachers are higher. What this means for the current study is that school characteristics must be considered because they may be inadvertently related to school crime regardless of other events or demographic variables.

Considering previous research, the current study will therefore control for school type, school size, region, and urbanity. For instance, the literature has shown that school type is important to consider because families self-select into private schools and are therefore assumed to invest more heavily in their children's education than families of students in public schools (McNeely, Nonnemaker, & Blum, 2002). Students in private schools may thus be exposed to less severe discipline policies and more discretion is expected to be used in disciplinary decisions by administrators since a student's parents are more involved. ***School type*** is a dichotomous measure that included the response options public (1) or private (0) school. It is expected that students in public school are at an increased risk for expulsion and future arrest.

Second, school size is considered in this study because it has been shown in the literature that as schools get larger, they also get more bureaucratic (McNeely, Nonnemaker, & Blum, 2002). This means that administrators in larger schools may use less discretion during disciplinary decisions because it is seemingly harder to discipline students on a case-to-case basis when the student body becomes large and the relationship between the administration and student body becomes less personal. The ***School size*** measure is operationalized using the following three categories: small schools (up to 400 students), medium schools (up to 1000 students), and large schools (up to 4000 students). This measure was constructed as such because that is how it was collected and coded in the ADD Health Data Set. It is hypothesized that students in larger schools will be at an increased risk for expulsion and future arrest.

Finally, school region and urbanity were considered because it may be that schools in certain locations and communities have different types and levels of crime than others. Consider the aforementioned finding that schools in urban locations have higher rates of victimization against teachers than schools in rural locations (Gottfredson, et al., 2005). ***School region*** is categorized by the Midwest, West, South, and Northeast. The final school region measures are dichotomized as Midwest (1) or not (0), West (1) or not (0), South (1) or not (0), and Northeast (1) or not (0). It is hypothesized that students in the South will be at a higher risk for expulsion and future arrest because the South is known for having more conservative policies than the rest of the country. ***Urbanity*** is determined by whether a student attends an urban, rural, or suburban school. The final measure was dichotomized as urban (1) or not (0). Urban included both urban and suburban schools. It is expected that students from urban schools will be at an increased risk for expulsion and future arrest.

Analysis Plan

The analysis for this study is broken down into the following steps: 1) descriptive; 2) bivariate correlations; and 3) multivariate models. As mentioned, the first step in the analysis plan involved the generation of descriptive statistics for all study variables. This section presents information about the variables by describing the relationship between the independent and dependent variables. This allows for a clear picture of distribution and spread of each study variable.

Second, since the current study is interested in the relationship between two or more variables, bivariate associations are assessed. This procedure allows for an assessment of the strength and direction of the correlations between each of the independent and dependent variables. These relationships are represented in the current study by the appropriate correlation coefficient: Pearson's Product Moment Correlation Coefficient (Pearson's r), Spearman's Rho Correlation Coefficient, Phi Coefficient, and the Point Biserial Correlation Coefficient. Pearson's r was used to measure the relationship between two interval/ratio variables, Spearman's rank was used to measure the relationship between one ordinal and one nominal level variable, Phi was used between two nominal variables, and finally, Point Biserial was used when there was one nominal and one interval/ratio level variable. The formulas are as follows.

- Pearson's r: $r = (\sum Zx*Zy)/ n-1$
- Spearman's Rho: $\rho = 1 - \{[6 (\sum d_i^2)] / (N^3 - N)\}$
- Phi: $\Phi = (ad-bc)/(\sqrt{}efgh)$
- Point Biserial: $r_s = 1 - [(6\sum D^2)/(n(n^2-1))$

The third section of the analysis, the multivariate modeling, is critical for presenting the independent items in the model that are predictors of the dependent variables, holding other variables constant. In order to predict the probability of being expelled and subsequent arrest in adulthood, two logistic regression models were constructed in the current study. Logistic regression predicts the probability of the dependent response, rather than the value of the response (Hosmer & Lemeshow, 2005). It was appropriate to use logistic regression in this study because both dependent response variables are binary in nature.

Before any models were run, the assumptions of logistic regression were tested as they apply to the data. First, logistic regression assumes there is a linear relationship between the dependent and independent variables; it does not assume, however, that the independent variables have a linear relationship with one another (Hosmer & Lemeshow, 1989). In this study, the predicted probability of an independent variable does fall into the higher of the two categories on the dependent variable. Second, the dependent variable must be a dichotomy, or only two categories. Both dependent variables are indeed binary in nature. Second, there also must not be any outliers in the data. No outliers were found in this study (Hosmer & Lemeshow, 1989). Third, larger samples are needed in logistic regression than for linear regression because maximum likelihood coefficients are large sample estimates (Hosmer & Lemeshow, 1989). A minimum of 50 cases per predictor is recommended. The current analysis meets that assumption, with the final sample size at an average of 11,907 cases for 16 predictors. Finally, the categories (variables) must be mutually exclusive and exhaustive; a case can only be in one group and every case must be a member of one of the groups (Hosmer & Lemeshow, 1989). Any cases that did not have values for the categories (variables) in the equation (i.e., responses such as "did not respond", "did not know") were not included in the final analyses and were treated as discrete missing cases.

Upon close consideration, there did not appear to be any systematic differences or pattern produced as a result of missing cases. Recall that in order to control for temporal order, all respondents in this study who reported they had been arrested one or more times prior to age 18 were dropped from the final analyses. After dropping these respondents, the final sample of arrested respondents went from 4,395 to 3,630. What *can* be said in terms of the missing cases is that no significant changes were seen when logistic regression models were run with and without those respondents who had been arrested one or more times prior to age 18. In other words, dropping these cases did not make an appreciable difference in sample composition.

Further, when using logistic regression, standard errors needed to be adjusted in order to account for the non-independence of the observations since there is clustering of students within schools in our sample. Stata is statistical software that allows for the standard errors to be adjusted accordingly. Since the SPSS software is not equipped to account for clustering because variance estimates in SPSS are based on the assumption of a simple random sample (Dowd & Duggan, 2001), the SPSS variables were transferred into Stata where the logistic regression equation was run for both models.

In addition to transferring the data from SPSS to Stata, a collinearity diagnostic test was run in Stata following the logistic regression outputs. This is an important step because as the independent variables become more highly correlated with the dependent variable, it can become more difficult to determine which independent variable is actually producing the effect on the dependent variable. The variance inflation factor, or VIF, is used to indicate multicollinearity in the logistic regression models. A variable whose VIF values are greater than 4 may warrant further investigation while a VIF value greater than 10 may indicate serious multicollinearity (Simon, 2004). The mean VIF for Model 1 was 1.42 and the mean for Model 2 was 1.41. Further, there were no variables that had a VIF greater than 4. The results show that there are no collinearity issues in either model.

The following equations represent the two logistic regression models used in this analysis:

- Log odds: $\ln (p_i/(1-p_i)) = \beta_0 + \beta_i{*}X_i$

Model 1: Expelled

$\text{Expelled}_{\text{PREDICTED}}$ = .296 – (0.014*severe discipline) + (0.092*strain suicide) – (0.181*strain parental rejection) + (0.088*strain disjunction) – (.064*social control) + (0.064*low self-control) + (0.050*differential association) + (0.035*prior delinquency) + (1.467*suspended) – (0.089*age) – (0.696*sex) – (0.433*race) – (0.172*school size) – (0.219*school type) + 0.136*west) + (0.507*south) – (0.090*midwest) – (0.188*urbanity)

Model 2: Arrested

$\text{Arrested}_{\text{PREDICTED}}$ = -0.368 + (0.771*expelled) + (0.002*severe discipline) – (0.031*strain suicide) + (0.119*strain parental rejection) + (0.140*strain disjunction) – (0.012*social control) + (0.011*low self-control) + (0.104*differential association) + (0.048*prior delinquency) + (0.607*suspended) – (0.080*age) – (1.048*sex) – (0.057*race) + (0.014*school size) – (0.030*school type) + (0.021*west) + (0.359*south) + (0.429*midwest) + (0.118*urbanity)

Chapter IV: Results

Univariate Descriptives

The first objective in this analysis was to describe the variables of interest by reviewing the different levels of central tendency for each measure. The first two measures in **Table 1** are the dependent variables of interest. According to **Table 1,** the average student in this study has not been expelled. In fact, only 6 percent responded "yes" at Wave III. The arrest measure shows most students in the survey have also not been arrested. Only 24 percent of the sample reported being arrested at Wave IV.

The following measures in **Table 1** include the independent variables of interest. As you recall, the measure of severe discipline policies consisted of 12 offenses that were rated on a scale from 0-5, with 0 indicating no policy and a score of 5 indicating expulsion. The highest score any one school received was 54 out of 60, and the lowest score any one school received was an 8.

A close review of this measure also shows us the following percentage of schools (out of 172) that have a policy where students are automatically given out-of school suspension or expulsion for certain offenses, the very first time it is committed: 4 percent for cheating, 63 percent for fighting, 63 percent for physically injuring another student, 80 percent for possessing alcohol, 90 percent for using illegal drugs at school, 35 percent for smoking cigarettes at school, 43 percentfor verbally abusing a teacher at school, 88 percent for possessing illegal drugs at school, 90 percent for possessing a weapon at school, 75 percent for drinking alcohol at school, 88 percent for physically injuring a teacher at school, and 65 percent for stealing school property.

Moreover, as you can see from **Table 1**, the average school had a school discipline score of 44.37. Considering the highest point on the scale was 60 and the lowest point was 0, this tells us that the average school in this study has moderately severe school discipline policies.

Next, **Table 1** shows the descriptive statistics for the four criminological measures in this study. First, in regards to the three strain measures, **Table 1** shows that 20 percent of students have known a friend or family member who tried to kill themselves, approximately 40 percent of students have had a serious argument with his/her mother or father, and almost 30 percent of respondents rated his/her desire to attend college was greater than their estimated likelihood of attending.

Second, **Table 1** reveals that the average student scored a 24.96 on the social bond scale. The average adolescent, therefore, exhibits relatively strong social bonds. This means on average, students reported playing conventional games such as sports or video games (i.e., involvement), and/or making average grades (i.e., commitment), and/or is attached to their school and/or parents (i.e., attachment).

Third, the low self-control measure revealed the average student scored a 9.47 on a scale from 0-20 (See **Table 1**). In other words, most students had moderate levels of self-control. Fourth, the differential association measure showed that the average student had about 2 delinquent friends who were also considered best friends. Please note, however, that the modal respondent scored a 0 on the delinquent peer scale, with a score of 0 meaning many respondents do not have best friends who constitute delinquent peers.

Finally, **Table 1** describes the various individual-level and school-level demographics as well as other control variables included in the final models. The suspension measure shows most students have also never been suspended. In fact, approximately 75 percent of the sample reported never being suspended at Wave I. Looking at the prior delinquency measure, on average, students scored a 4 out of a possible 45 on the prior delinquency scale.

Further, **Table 1** show that students in this sample ranged from 11 to 21 years of age with a mean of just over 16 years of age. In addition, subjects in the sample were more likely to be female (56%) and White (64%). Looking at the school-level demographics, about 48 percent of students in the final sample attended a large school with over 1000 students, while approximately 35 percent attended a medium-sized school (401-1000 students), and about14 percent attended a small school with up to 400 students. In addition, the average student was enrolled in a public school rather than a private school. Moreover, the average school is in a suburban setting in the South.

Bivariate Results

The second objective of the analysis was to quantitatively assess the strength and direction of the correlation between the predictor and dependent variables of interest. **Table 2** reveals the series of bivariate correlation coefficients. The Point Biserial Correlation Coefficient was used to assess the relationship between severe discipline and the dependent variables. Contrary to expectations, no significant relationship was found between the severity of school discipline policies and the risk of being expelled ($\underline{r}$ =0.007) or arrested ($\underline{r}$ = 0.011) (See **Table 2**). Next, since both variables are dichotomous nominal, the Phi correlation coefficient was used to assess the relationship between being expelled and arrested. Looking at **Table 2**, the Phi correlation coefficient between the expelled and arrested variables is 0.167**. This means that, as predicted, students who have been expelled are at an increased risk for being arrested in the future.

Next, it is important to assess the bivariate relationship between the criminological measures of interest and the dependent variables (see **Table 2**). Note that the bivariate results show that five out of six criminological measures were significantly related to both dependent variables in the posited direction (all were in posited direction). The first criminological measure, strained by suicide, had a Phi correlation coefficient of 0.024** with the ever expelled measure and 0.018* with the ever being arrested measure, indicating slightly positive and significant relationships in both cases (See **Table 2)**. The second measure, strained by parental rejection, did not have a significant relationship with expulsion but had a Phi correlation coefficient of 0.049** with the ever being arrested measure, indicating a slightly positive and significant relationship. The third measure, strain by disjunction between educational aspirations and expectations, had a Phi correlation coefficient of 0.052** with the ever expelled measure and 0.077** for the ever arrested measure. Overall, there is a slightly positive and significant relationship between those students who reported any of the aforementioned types of strain and being expelled or arrested. This means strained students do report more expulsions and arrests than students who are not strained.

Second, the Point Biserial Coefficient for the social control measure was -0.124** for ever been expelled and -0.077** for ever been arrested (See **Table 2**). The coefficients indicate a slightly significant and negative relationship, suggesting that the chances of expulsion and arrest increase the lower a student scores on the social bond scale. My hypotheses pertaining to the first two criminological theories are supported at the bivariate level.

Third, the Point Biserial Coefficient for the low self-control measure was 0.071** for ever been expelled and 0.070** for ever been arrested (See **Table 2**). This indicates a slightly significant and positive relationship between having low-self control and being expelled or arrested. This means on average, those students with low self-control are more likely than students with high self-control to ever be expelled or arrested. Once again, my hypotheses are supported at the bivariate level.

Fourth, the Point Biserial Coefficient for the differential association measure is 0.097** for ever been expelled and 0.174** for ever been arrested (See **Table 2**). The coefficients indicate a positive and significant relationship. In this case since the relationship is positive, students with more delinquent peers are more likely to be expelled and arrested than students with fewer delinquent peers. My final criminological hypothesis was supported at the bivariate level.

Table 2 also shows that several control measures included in the model were significantly related to the dependent variables of interest. First, it is clear from **Table 2** that the correlation coefficients for prior delinquency and both dependent measures were positive and significant. In particular, the Point Biserial coefficient was 0.144** for ever been expelled and 0.213** for ever been arrested (see **Table 2**). Those who score higher on the delinquency scale at Wave I are more likely than those who score lower on the scale to ever be expelled at Wave III or arrested at Wave IV. Second, as hypothesized, having been suspended at Wave I also has a positive and significant Phi Correlation Coefficient of 0.238** for ever been expelled at Wave III and 0.220** for ever been arrested at Wave IV (See **Table 2**).

Next, **Table 2** reveals that most of the listed individual-level demographic variables at Wave I have a significant relationship with both ever being expelled at Wave III and ever being arrested at Wave IV as hypothesized. The age variable was positive but not significant in either case. The Phi correlation coefficient for females is -0.085** for expelled and -0.225** for arrested indicating negative and significant relationships. On average, male students are reporting more expulsions and arrests than female students. Furthermore, the Phi correlation coefficient for race is -0.068** for ever been expelled but is not significant for the arrest measure. On average, the likelihood of a non-white student reporting ever being expelled is higher than the likelihood of a White student reporting expulsion or arrest.

Finally, **Table 2** shows that many of the school-level demographics are significantly correlated with the dependent variables at the bivariate level in the expected direction. In particular, the correlation coefficient was significant for school size and being expelled (-0.022*) and school type had significant correlations with being expelled (-0.027**) and arrested (-0.019*). Additionally, schools in the South and Midwest had significant correlations for both dependent variables and the West was significant with only arrest.

Multivariate Results

The final objective in this analysis was to construct a multivariate model to assess the probability of being expelled and subsequently arrested in adulthood. **Table 3** presents two logistic regression models (see **Models 1 and 2)** that highlight the independent items in the model that are significant predictors of the dependent variables, holding other theoretically relevant variables constant. Note that pseudo r square is .098 for **Model 1** and .168 for **Model 2**. The larger the pseudo r-square statistic, the greater the variability is explained by the model (maximum of 1, with 1 being a perfectly predictive model) (Hosmer & Lemeshow, 2005). In this study, the r-square statistic is not very large; therefore, the current study's model does not explain the dependent variables very well.

Turning to the logistic regression results presented in **Table 3**, we begin with a consideration of the two main research hypotheses. The first measure, severe discipline polices, produced an unexpected result, as the likelihood of being expelled was not significant nor was it in the posited direction. Looking at **Model 1,** the odds ratio for severe discipline and ever been expelled is .986 but not significant. What this means is that for every unit increase in severity of school discipline policies, the odds of ever being expelled are reduced by a factor of .986. This finding is not in the predicted direction or consistent with what was found at the bivariate level where at least a weak positive (n.s.) relationship between severe discipline in schools and the risk of being expelled.

Moreover, **Model 2** shows an insignificant but positive relationship between the severity of school discipline policies and arrest outcomes when all other variables in the equation are held constant at their mean level. Specifically, the odds ratio of 1.002 indicates that students who attend schools with more severe discipline policies face negligible increases in their likelihood of being arrested.

Referring to the odds ratios (Exp(B)) appearing in **Model 2 of Table 3**, note that when holding all other variables constant, expulsion is a significant predictor of future arrest. More specifically, those students who report being expelled at some point during their school career had 2.162 times the odds of being arrested than those without expulsion records. This is the largest odds ratio in the model. As such, my main hypothesis that students who have been expelled are more likely to be subsequently arrested in adulthood was supported at the multivariate level.

Next, attention is shifted to **Table 3** and the results for the criminological measures included in the equation as predictors of expulsion and arrest outcomes. Note that five of the six criminological measures had a significant relationship with at least one of the two dependent variables, with almost all relationships manifesting themselves in the posited direction. There was partial support for the hypothesized impact of the three strain measures.

Regarding the three strain measures, **Model 1** shows the odds ratio for respondents who reported being strained by suicide and ever been expelled is 1.096 but is not significant. In other words, strained students have a slightly increased but statistically insignificant likelihood of ever being expelled compared to respondents who are not strained. On the other hand, the odds ratio of 0.970 in **Model 2** suggests that strained students have a decreased but statistically insignificant likelihood of ever being arrested compared to respondents who are not strained. Next, **Model 1** shows the odds ratio for respondents who reported being strained by parental rejection is 0.834 for ever been expelled and 1.123 for ever been arrested. Strained students have a slightly decreased and significant likelihood of being expelled but an increased and significant likelihood of being arrested. Finally, the last strain measure, the disjunction between educational aspirations and expectations, has an odds ratio of 1.092 for ever been expelled and 1.150 for ever been arrested. Students who reported strain by disjunction have an increased but insignificant likelihood of being expelled and an increased and significant likelihood of being arrested. Given that my hypothesis was that individuals who have experienced strain would be at an increased risk for expulsion and subsequent contact in the criminal justice system, my strain theory hypothesis is only partially supported at the multivariate level.

The next criminological measure, social control, was significant and in the posited direction for both models. **Model 1** shows social control has an odds ratio of 0.938 for expelled. Further, **Model 2** shows the odds ratio for social control and arrested to be 0.988. Students with high social control have a slightly decreased and significant likelihood of being expelled and arrested. Substantively speaking, this means that students with stronger bonds are involved in more conventional activities and generally have stronger attachments to school and parents.

Overall, my social control hypotheses are supported in both the bivariate and multivariate models.

The third criminological measure, low self-control, produced mixed results but both cases were in the posited direction. In **Model 1,** low self-control yielded an odds ratio of 1.066, suggesting that every unit increase on the self-control scale, the odds of ever being expelled are significantly increased by a factor of 1.066. Conversely, in **Model 2**, the odds ratio for low self-control and arrested was positive but not significant. For every unit increase on the scale, the odds of ever being arrested are increased by a factor of 1.011. In other words, students who have lower levels of self-control are at an increased risk of being expelled or arrested. As such, the hypothesis students with low self-control are at an increased risk for being expelled and/or arrested was only partially supported at the multivariate level.

The final criminological measure, differential association, was significant and in the posited direction in both models. Results for **Model 1** suggest that for every unit increase in the number of delinquent peers, the odds of ever being expelled are increased by a factor of 1.051. **Model 2** shows the odds ratio for ever been arrested and delinquent peers to be 1.110 and is also significant. These results suggest that, holding all other factors in the model constant, the addition of each delinquent peer leaves the respondent 1.051 times the odds of being expelled and 1.110 times the odds of being arrest. My differential association hypothesis is thus supported at both the bivariate and multivariate level for the final criminological measure.

A consideration of the results for the remaining control variables is also warranted. **Model 1** shows the odds ratio for prior delinquency and ever being expelled to be 1.036 and is significant; thus, for every unit increase on the delinquency scale, the odds of ever being expelled are increased by a factor of 1.036. **Model 2** shows the odds ratio for ever been arrested and prior delinquency to be 1.050 and is also significant. Overall, holding all other variables constant, respondents who commit more delinquent acts at Wave I correspond with increasing odds of ever being expelled at Wave III or arrested at Wave IV.

It is also revealed in **Table 3** that being suspended at Wave I is one of the most predictive variables in the model by far. **Model 1** shows the odds ratio is 4.336 and **Model 2** shows the odds ratio is 1.835. For students who have been suspended, the data suggest, as predicted, that the odds of ever being expelled are significantly increased by a factor of 4.336 and the odds for subsequent arrest are significantly increased by a factor of 1.835.

Regarding the individual-level demographics, age and sex were significant predictors in both multivariate models. For instance, female students had significantly reduced odds over male students for ever being expelled or arrested. The odds of ever being expelled for females are reduced by a factor of 0.499 (See **Model 1**). Moreover, the odds of ever being arrested for females are reduced by a factor of 0.351 (See **Model 2**). Overall, females have decreased odds of ever being expelled at the multivariate level. Race was significant in **Model 1** but not in **Model 2.** Referring to **Model 1,** the data suggest that being White significantly reduced the likelihood of being expelled by a factor of 0.649.

Lastly, in regards to the effects of school-level variables at the multivariate level, **Table 3** shows that school size, school type, and urbanity of school were not significant predictors in either logistic regression model, holding other variables constant. A few regions, however, had a significant role in predicting the dependent variables. Students from the South had a significantly increased likelihood of being expelled (**Model 1**) by a factor of 1.660 *and* being arrested (**Model 2)** by a factor of 1.432 compared to students in other regions. The odds of students from the

Midwest being arrested (**Model 2)** increased by a factor of 1.536 and was significant, holding all other variables constant.

Chapter V: Discussion and Conclusions

The main gap in the research on the school to arrest pipeline is that few studies have actually measured how severe school discipline policies, individual and school-level factors, and other competing theoretical variables affect the risk of expulsion and then subsequent contact in the criminal justice system. In response, this analysis highlighted the pathway from school to arrest by analyzing the competing effects of severe school disciplinary policies, strain theory, social control theory, the general theory of crime, differential association, and prior delinquency and how these factors affect a students' risk for expulsion and then subsequent contact with the criminal justice system. The major findings were as follows.

There are two main research questions that were explored in this study. The first question explored whether severe discipline policies in schools affected the risk for expulsion and the second questioned explored whether expulsion affected the risk for subsequent contact with the criminal justice system. The first question examines the first major link of the school-to arrest pipeline and the second question explores the second major link. Contrary to this study's main hypotheses, the likelihood of being expelled is reduced if you attended a school with a more severe discipline policy. The assumption was that an increase in harsh discipline policies followed the implementation of the "Gun-Free Schools Act of 1994.' After the act was implemented, school discipline policies added behaviors beyond the possession of a weapon that would automatically result in expulsion

One possible explanation for why students who attend schools with more severe discipline policies have reduced likelihoods of being expelled is that these students may be keenly aware of the fact that certain offenses have predetermined consequences. For these students, the risk is therefore greater than the reward. This line of thought is concurrent with deterrence theory which suggests the rational calculus of the pain of punishment offsets the motivation for the crime (Akers, 1990).

On the other hand, the literature suggests that expulsion outcomes are not in fact due to severe discipline policies and instead, expulsion is correlated more directly with individual-level characteristics such as race (Vavrus & Cole, 2002), sex, socioeconomic status, disabilities or low academic competence (Christle, Nelson, & Jolivette, 2004). Gottfredson and Hirschi (1990) found that age affects crime whether or not major life events occur and that its effects on crime are independent of other demographic measures of crime. Similarly, the literature has consistently shown that females are involved in less school misconduct and delinquency than males (Welsh, Greene, & Jenkins, 1999). Lastly, racial minorities have been shown to be at an increased risk for academic failure because of their socioeconomic background and also because academic success is viewed as “being too white” (Rocque & Paternoster, 2011). This study indeed found that individual-level factors such as age, being male and being non-white are positively correlated with the risk for expulsion.

These aforementioned findings in existing literature could mean two things for this study: First, non-whites are at an increased risk for expulsion independent of other demographic measures of crime. Second, if it holds true that minorities avoid academic success because success is considered “too white” (Rocque & Paternoster, 2011), then it can also be assumed that minorities will exhibit weaker bonds to the school. This study found that Whites were significantly more likely than non-whites to have strong bonds to the family and school. This finding is significant because this study showed that stronger bonds to the family and school can decrease the risk for expulsion. For instance, students in general who scored low on the social bond scale in this study indeed had significantly higher probabilities of being expelled than students who scored higher on the social bond scale.

Further, students who reported weaker social bonds, low self-control, had best friends who participated in delinquent acts and participated themselves in prior delinquency were at an increased risk of reporting expulsion. These results were not surprising because past research has shown that individuals with weak social bonds are at an increased risk for delinquent behaviors (Hirschi, 1969), individuals with low self-control are more vulnerable when presented with criminal opportunities (Gottfredson & Hirschi, 1990), association with delinquent peers is related to youth participation in delinquent activities (Kubrin, Stucky & Krohn, 2009) and prior delinquency is a known risk factor for future criminal behavior (Nagin & Paternotser, 1991). This current study's findings and the existing literature therefore suggest students who are expelled may be those students who need help the most from the school system, and future policy should consider the types or characteristics that school policies target before it leads to adult criminality. This implication will be discussed in greater detail below.

The other main research question shaping the current study was whether expulsion affected the risk for subsequent contact with the criminal justice system. The relationship between expulsion and future adult arrest is a major link in the school to prison pipeline and the problem with our previous understanding of expulsion usage was that no studies have been able to demonstrate that expulsion effectively deters subsequent criminal behavior (Rocque & Paternoster, 2011). With that being said, this study showed that students who reported being expelled at some point during their school career were significantly more likely to be subsequently arrested than those without expulsion records. This finding was one of the strongest predictors in the model and is a major finding for this study and future research.

There are several plausible explanations for why expulsion might increase the likelihood of arrest. First, when a student is expelled, he/she is banned from public or private school indefinitely and thus faced with the constrained choice of enrolling in an alternative school or dropping out altogether (Klehr, 2009). Youth who enroll in an alternative school find themselves among other youth coming from at-risk social backgrounds and with a track record of failure in the traditional school system. In fact, 50 percent of the states in America report that students served in alternative schools include those who are suspended, expelled, pregnant, homeless, migrant, delinquent, disruptive, dangerous to self or other, in need of remedial education, or released from a correctional facility (Katsiyannis & Williams, 1998). For those who drop out, they are now without a high school diploma trying to compete with other jobless youth.

Further, this study also highlighted how certain individual behaviors significantly increase the likelihood of expulsion, such as low self-control. Expelling those students with low self-control who need the traditional school system the most may be the worst decision the school system can make. Further, students with weak bonds are those who are already not involved in conventional activities and less attachment to parents and the school. Expulsion will certainly not increase the bond to the school, and if the bond to the parent is already weak, chances are the student has no one and nowhere to turn to and will be at an increased risk for failure. These are all important issues to consider because what we know from this current study that students who are expelled are at an increased risk for adult arrest.

Finally, the literature suggests that certain individual-level demographics have significant roles in predicting school-based and criminal justice-based outcomes. This study indeed found that age, sex, and race had significant relationships with the dependent variables. As discussed previously in this section, these results are not surprising because age and its effects on crime have been found to be independent of other demographic measures of crime (Gottfredson & Hirschi, 1990), females are involved in less delinquency than males (Welsh, Greene, & Jenkins, 1999), and being a member of a racial minority member is positively and significantly related to higher referral rates into the criminal justice system (after controlling for environmental factors and offense committed) (Nicholson-Crotty, Birchmeier, & Valentine, 2009).

Further, the current study's school-level measures did not have a significant impact on expulsion and subsequent arrest. When controlling for other key variables, it did not matter whether the student attended a small, medium or large school or attended school in urban areas. The only measures that produced a significant outcome on the dependent variables were the regions: South and Midwest. In this study, students who were enrolled in schools in the South had an increased risk for being expelled and subsequently arrested. Schools in the South may have more punitive measures because the South, also referred to as the Bible belt, is considered a socially conservative region. It stands to reason that the more rules and laws in place, the greater the risk for breaking one.

Limitations of Current Study

There are several limitations in the current study that are worth noting. While the ADD Health data set allowed the author to evaluate the relationship between variables such as school discipline policies, expulsion, and arrest, one must be cautious when making any causal inferences due to the threat of temporal ordering, the use of proxy measures, and reliance on a secondary data set.

As mentioned, the current study was limited by the threat of temporal ordering. This study looked at the change of responses from variables at three different waves: Wave I, III, and IV. Although the data set allowed for the analysis of competing theoretical explanations for expulsion and then future contact with the criminal justice system (adult arrest), there is no way to examine whether independent variables of interest at Wave I were affected by the dependent variable at Wave III. For instance, the three measures of strain were measured at Wave I in this study but not at Wave III or IV. This makes it difficult to say that strain at Wave I increased after expulsion at Wave III, therefore directly causing arrest at Wave IV. What we can infer from the results of this study, however, is that strained students have an increased risk of ever being expelled or arrested compared to respondents who are not strained.

Considering there are “multiple truths”, or multiple explanations for select behaviors in the school to arrest pipeline, future research should therefore determine whether expulsion increases strain, weakens bonds to the family or school, lowers self-control, and increases the number of delinquent peers. A careful examination of these criminological measures and the relationship between expulsion and arrest will help highlight some of the reasons expulsion increases the risk for future arrest and lead us closer towards any causal inferences.

As previously mentioned, causal inferences were also limited in this study due to the use of proxy measures. The current study was forced to use proxy measures for several key concepts due to the reliance on a secondary data set. The use of proxy measures cause issues of model specification because good measures are not available for all relevant independent variables at all waves. For instance, the theoretical measures were chosen so key concepts and underlying assumptions of the theory could be measured; these measures were not exhaustive and only test partial links of the theories critical to our study. First, appropriate measures for social control theory were only available for three out of four bonds. Belief in school rules, which has been found to be related to school misbehavior, was not measured in the initial data collection. This study was nonetheless forced to exclude this factor.

Second, this study largely dropped the use of social learning measures in the hypothesis and instead measured the underlying assumption of differential association because the ADD Health Data Set lacked the appropriate components critical to social learning theory. The underlying assumption of differential association assumes individuals conform to the rules or participate in criminal behavior depending on the criminality of those individuals' peer groups

Further, there were time gap discrepancies for the three strain measures. For instance, the first strain measure asked a series of questions that related to the "past 12 months" while the second strain measure asked respondents to only go back the "past 4 weeks." This is important to note because events in the previous week or month may evaporate in teens' life and have no meaning in the near future.

Reliance on a secondary data set also limited the availability of good measures which helped to explain or describe the pathway from the independent variables of interest to the dependent measures. For instance, this study asked respondents if they have ever been expelled, but there was no direct follow up question as to why or what factors lead up to expulsion and adult arrest. Expulsion may very well increase students' risk for future arrest, but what actually causes this risk to increase after expulsion for these students? For some students it may be the alternative school and for others that chose to drop out altogether, they may have difficulty finding a job amongst all the other jobless youth in the United States. The current study was therefore limited in examining the interactive effects of expulsion on arrest, but future research should carefully consider that "being expelled" and "being arrested" may differ across contexts - be they based on sex or race- and that it is important to recognize that there are "multiple truths" to be uncovered in the school to arrest pipeline. One way to do this is by utilizing qualitative data in addition to quantitative methods. Qualitative data would help fill in the gaps because it will help highlight the context in between expulsion and arrest.

Conclusions

Overall, this analysis highlighted the pathway from school to arrest by analyzing the competing effects of severe school disciplinary policies, strain theory, social control theory, the general theory of crime, differential association, and prior delinquency and how these factors affect a students' risk for expulsion and then subsequent contact with the criminal justice system. What this study found was that contrary to popular belief, the likelihood of being expelled is not increased if you attended a school with a severe discipline policy. What actually increases the risk for expulsion in this study are factors such as weak social bonds, low self-control, association with other delinquent peers, prior delinquency, and individual-level factors such as age, sex, and race.

On the other hand, what this study did find was students who reported being expelled at some point during their school career were significantly more likely to be subsequently arrested than those without expulsion records. This was a major finding for this study and future school policy because while school discipline policies do not increase the risk for expulsion, expulsion does indeed increase the risk for future arrest.

Overall, this study therefore showed there are several factors that significantly increase the risk for expulsion and future arrest; therefore, this study rejects the idea that there is a universal "pipeline" to prison. It is not enough to just know that expulsion increases the risk for arrest. Rather, it is important to explore the different pathways and learn *why* expulsion increases the risk for future arrest.

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Tables

Table 1.
Measures of Central Tendency and Standard Deviations on Key Wave I, III, and IV Variables

Variable (N = 11,709)	Min	Max	Mean	S.D.
Expelled	0	1	0.06	0.23
Arrested	0	1	0.24	0.42
Severe Discipline	8	54	44.37	5.62
Strain: Suicide	0	1	0.20	0.40
Strain: Parental rejection	0	1	0.38	0.49
Strain: Disjunction	0	1	0.28	0.45
Social control	1	35	24.96	5.08
Low self-control	1	20	9.47	2.39
Differential association	0	9	2.39	2.56
Prior delinquency	0	45	3.95	4.75
Suspended	0	1	0.25	0.43
Age	11.39	21.34	16.10	1.70
Sex (female)	0	1	0.56	0.50
Race (white)	0	1	0.64	0.48
School size	1	3	2.33	0.72
School type	1	2	1.08	0.27
Region:				
West	0	1	0.24	0.43
South	0	1	0.38	0.49
Midwest	0	1	0.25	0.44
North	0	1	0.12	0.32
Urbanity	0	1	0.82	0.39

Table 2. Bivariate Correlations for Key Wave I, III, and IV Variables (N=11,709)

	1	2	3	4	5	6
1. Expelled	1					
2. Arrested	0.167**	1				
3. Severe Discipline	0.007	0.011	1			
4. Strain: Suicide	0.024**	0.018*	-0.007	1		
5. Strain: Parental rejection	0.002	0.049**	0.003	0.105**	1	
6. Strain: Disjunction	0.052**	0.077**	-0.005	0.040**	0.027**	1
7. Social control	-0.124**	-0.077**	-0.004	-0.105**	-0.062**	-0.127**
8. Low self-control	0.071**	0.070**	0.002	0.046**	0.096**	0.087**
9. Differential Association	0.097**	0.174**	0.012	0.182**	0.156**	0.057**
10. Prior Delinquency	0.144**	0.213**	-0.019*	0.217**	0.209**	0.099**
11. Suspension	0.238**	0.220**	0.044**	0.029**	0.057**	0.107**
12. Age	0.004	0.007	-0.009	-0.021*	0.002	-0.046**
13. Sex (female)	-0.085**	-0.225**	0.016	0.133**	0.078**	-0.082**
14. Race (White)	-0.068**	-0.014	-0.080**	0.058**	0.041**	-0.031**
15. School size	-0.022*	0.006	-0.013	0.011	0.026**	0.009
16. School type	-0.027**	-0.019*	-0.002	-0.004	-0.003	-0.066**
17. West	-0.006	-0.034**	-0.006	0.019*	0.006	-0.052**
18. South	0.053**	0.022*	0.195**	-0.026**	-0.044**	-0.010
19. Midwest	-0.035**	0.036**	-0.097**	0.005	0.031**	-0.032**
20. Urbanity	-0.016	-0.006	-0.158**	0.014	-0.012	-0.006

* p < .05; ** p < .01

Table 2 cont'd. Bivariate Correlations for Key I, III, and IV Variables (N=11,709)

	7	8	9	10	11	12
7. Social control	1					
8. Low self-control	-0.138**	1				
9. Differential Association	-0.272**	0.117**	1			
10. Prior Delinquency	-0.192**	0.187**	0.378**	1		
11. Suspension	-0.237**	0.090**	0.233**	0.261**	1	
12. Age	-0.239**	-0.090**	0.269**	0.017	0.102	1
13. Sex (female)	-0.121**	-0.015	-0.002	-0.101**	-0.128**	-0.056**
14. Race (White)	0.080**	0.053**	0.086**	-0.022*	-0.134**	-0.043**
15. School size	-0.123**	-0.028**	0.097**	0.070**	0.021*	0.362**
16. School type	0.086**	-0.017	-0.041**	0.010	-0.085**	-0.052**
17. West	-0.021*	0.006	-0.011	0.070**	0.013	0.057**
18. South	0.021*	-0.019*	-0.070**	-0.094**	0.025*	-0.042**
19. Midwest	-0.005	0.018	0.056**	0.011	-0.006	0.006
20. Urbanity	-0.021*	-0.007	-0.064**	0.020*	-0.022*	-0.017

	13	14	15	16	17	18
13. Sex (female)	1					
14. Race (White)	-0.024**	1				
15. School size	-0.025**	-0.112**	1			
16. School type	-0.023**	0.043**	-0.340**	1		
17. West	-0.008	-0.166**	0.205**	0.037**	1	
18. South	-0.003	-0.101**	-0.162**	-0.076**	-0.446**	1
19. Midwest	0.004	0.195**	-0.019*	-0.010	-0.331**	-0.461**
20. Urbanity	0.008	-0.172**	0.205**	0.088**	0.199**	-0.063**

	19	20
19. Midwest	1	
20. Urbanity	-0.155**	1

Table 3. Logistic Regression Analysis of Key Wave I and III Variables Predicting Expulsion and Adult Arrest (N=11,709)

	Expelled			*Arrested*		
	B	S.E.	Exp(B)	B	S.E.	Exp(B)
Expelled	-----	-----	-----	0.771	0.079	2.162**
Severe Discipline	-0.014	0.007	0.986	0.002	0.005	1.002
Strain: Suicide	0.092	0.091	1.096	-0.031	0.063	0.970
Strain: Parental rejection	-0.181	0.090	0.834*	0.119	0.053	1.123*
Strain: Disjunction	0.088	0.103	1.092	0.140	0.047	1.150**
Social control	-0.064	0.009	0.938**	-0.012	0.005	0.988*
Low self-control	0.064	0.017	1.066**	0.011	0.010	1.011
Differential Association	0.050	0.017	1.051**	0.104	0.014	1.110**
Prior delinquency	0.035	0.007	1.036**	0.048	0.007	1.050**
Suspension	1.467	0.098	4.336**	0.607	0.058	1.835**
Age	-0.089	0.037	0.915*	-0.080	0.021	0.923**
Sex (female)	-0.696	0.079	0.499**	-1.048	0.050	0.351**
Race (White)	-0.433	0.118	0.649**	-0.057	0.062	0.945
School size	-0.172	0.114	0.842	0.014	0.061	1.014
School type	-0.219	0.277	0.803	-0.030	0.095	0.970
Region: West	0.136	0.156	1.146	0.021	0.099	1.021
Region: South	0.507	0.168	1.660**	0.359	0.082	1.432**
Region: Midwest	-0.090	0.226	0.914	0.429	0.084	1.536**
Urbanity	-0.188	0.220	0.829	0.118	0.085	1.125
Constant	0.296	0.829	1.344	-0.368	0.472	0.069

*p < .05; **p < .01