GIRLS WHO ENGAGE IN DELINQUENCY: ADOLESCENT SUBTYPES AND YOUNG ADULT OUTCOMES

A Dissertation

by

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ABSTRACT

An increasing number of girls are being charged with crime during their adolescent years, but little is known about what brings these girls to engage in juvenile delinquency or what obstacles these girls face later in their lives as a result of engaging in criminal behavior. In the contexts of General Strain Theory and the Feminist Pathway Theory of criminal behavior, the present study used mixture modeling and the National Longitudinal Study of Adolescent to Adult Health (AddHealth) data set to answer three research questions. RQ1 asks what subtypes of adolescent girls who engage in serious delinquency can be identified using variables related to educational, psychological, and social performance. RQ2 compares the identified female model with a similar male model. RQ3 identifies distal psychological, social, educational, and economic outcomes associated with each identified class of girls who engaged in crime.

Results indicated that a 4 class solution was best fit for the subsample of girls who engaged in crime (RQ1). These classes included a Low Victimization class, a Moderate Victimization class, a High Victimization with Psychological Distress class, and a High Victimization with Violent Victimization class. For the male subsample, a 5 class solution was identified as having the best model fit (RQ2). These classes included a Low Victimization class, a Moderate Victimization class, and Moderate Victimization with School Problems class, a High Victimization with Psychological Distress class, and a High Victimization with Violent Victimization class. When young adulthood

outcomes were assessed (RQ3), no differences between classes of female offenders regarding rates of unwanted pregnancy, alcohol abuse, or in ratings of anxious personality emerged. However, female classes which experienced more interpersonal violence reported more mental health problems and substance use, worse educational performance, and tended to struggle the most in young adulthood. They had more formal arrests, more severe depression, were more likely to be economically unstable, and to have lower educational attainment. Implications and directions for future research are discussed.

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CHAPTER I

INTRODUCTION

Approximately one million adolescents, or 3% of the population of children ages 10-17, came into contact with the juvenile justice system in 2014 (Hockenberry & Puzzanchera, 2017). Juvenile offenders face a variety of risks throughout their childhood and adolescent years including family violence and disorganization, mental health and behavioral problems, and the association with peers who engage in delinquency (Assink et al., 2015; Baglivio, Wolff, Piquero, & Epps, 2015).

A growing segment of the juvenile offender population is female. In 28% of cases, adolescents who had charges pressed against them in 2014 were female (Hockenberry & Puzzanchera, 2017). As girls are comprising a larger proportion of the juvenile offender population, the need to understand female juvenile offenders through research is becoming increasingly important.

Characteristics of Female Juvenile Offenders

Risk Factors

Beginning in 2000, researchers from the feminist criminology field, among others, suggested that girls who are involved in the juvenile justice system have "distinctive [from boys] characteristics that require special treatment" (Burgess-Proctor, 2006 p. 32). Girls who criminally offend differ from their male counterparts in three key

ways. First, offending girls often experience chaotic and abusive family environments (Asscher, van der Put, & Stams, 2015; Robertson, Xu, & Stripling, 2010; Walters, 2013). While the same is true for boys, girls often experience these family problems at more severe levels (Asscher et al., 2015; Dixon, Howie, & Starling, 2005).

Second, female juvenile offenders have an increased likelihood of experiencing trauma over their male counterparts in general (Asscher et al., 2015; Kane & DiBartolo, 2002; Martin, Martin, Dell, Davis, & Guerrieri, 2008). For girls, these traumas are likely to be sexual in nature or to revolve around some family or intimate relationship (Abram, Teplin, McLelland, & Dulcan, 2003; Dixon, Howie, & Starling, 2004; Dixon, Howie, & Starling, 2005; Miazad, 2002; Robertson, Xu & Stripling, 2010).

The third difference between male and female offenders, which is related to the experience of significant trauma, is mental health problems. Girls who criminally offend have more mental health needs than offending boys and the general adolescent population (Abram et al., 2003; Cook, Barese & Dicataldo, 2010; Cruise, Marsee, Dandreaux & DePrato, 2007; Kataoka, Zima & Dupre, Moreno, Yang, & McCraken 2001; Lopez-Willams, Stoep, Kuo & Stewart, 2006). The mental health needs of girls are more often internalizing in nature than for boys (Sevecke, Lehmkuhl, & Krischer, 2009; Wasserman et al., 2010).

Educational Risk Factors. One under-studied set of risk factors for female offending is education. Girls who go on to offend often experienced many of the risk factors traditionally associated with delinquency (e.g., school suspension, academic

failure, and receipt of special education services; Belknap, 2006; Mullis et al., 2004). However, girls differ markedly from boys in the severity of their academic risk and in the relational aspects of their school experience. Girls who go on to offend often receive less instructional time in school and have more severe academic difficulties than offending males (Timmons-Mitchell et al., 1997). Related to academic difficulties, female offenders are more likely to drop out of school than their male peers (Belknap, 2006). Finally, a lack of school belongingness and emotional connection to school is especially risky for girls. Not having a connection to school put girls at higher risk for delinquency than males (Wood, Foy, Goguen, Pynoos & James, 2002). When studying the risk factors for delinquency which are unique to females, there is reason to believe that educational factors are important to understand.

Future Outcomes for Female Juvenile Offenders

In addition to assessing risk for offending in adolescence, it is important to understand offending girls' risk throughout their lives. Identifying the life domains where women who were formerly incarcerated as juveniles struggle is critical for two reasons. First, female juvenile offenders fare worse across sociological, health, education, and work-related domains than their male counterparts (Cauffman, Piquero, Broidy, Espelage & Mazerolle, 2004). Second, offending girls have varied risk factors so it follows that their lives would diverge based on those factors as they entered adulthood (Odgers, Moretti, Burnette, Chauhan and Waite, 2007). Understanding the life domains where different types of young women are likely to struggle as they enter

adulthood allows for the development of targeted services and interventions for a heterogeneous group of people.

Adult criminal behavior is uncommon in female juvenile offenders (Bright & Jonson-Reid, 2015). About 10% of girls arrested as juveniles will go on to enter the adult corrections system (Bright & Jonson-Reid, 2010). This rate is much lower than for males (Lancot et al., 2007). While girls generally avoid continued problems criminally, they fare much worse than their male counterparts in other critical domains of life including economic, relational, and psychological areas. Former female juvenile offenders use welfare services at higher rates and hold jobs for less time than their male counterparts when they reach adulthood (Lancot et al., 2007). Important to note is that this may be due to primary responsibility for childrearing or higher rates of psychological distress (Lancot et al., 2007). Abusive and violent relationships are more common for young women who were incarcerated during adolescence than non-offending females and offending males (Bright, Ward & Negi, 2011). Former female juvenile offenders struggle with mental illness at higher rates than their male counterparts and than women who were not arrested as adolescents (Bright et al., 2011; Lancot et al., 2007). Whereas the long-term effects of juvenile offending for females is linked to economic and psychological outcomes, there is a dearth of information regarding the the educational attainment of former female juvenile offenders.

Study Purpose

Emerging research suggests that girls and women exhibit pathways to crime which are different from those of males (Belknap & Holsinger, 2006; Chesney-Lind & Sheldon, 2003; DeHart, Lynch, Belknap, Dass-Brailsford, & Green, 2014; Dehart, 2009; DeHart, 2008). Key differences include more serious trauma exposure, more relationship-based problems, and the often sexual nature of victimization in female samples (DeHart et al., 2014). Research has also identified that educational performance (both academic and behavioral) is an important risk factor for delinquency generally, and may be especially relevant for girls (Belknap, 2006). While some studies have examined how various risk factors interact to predict delinquency in youth, only three studies were identified subtypes of female juvenile offenders (Cruise et al., 2007; Guthrie, Cooper, Brown, & Metzger, 2012; Odgers et al., 2007). Importantly, none of these studies included participant's educational performance or examined distal outcomes outside of future criminal behavior.

The present study extends previous research on female juvenile offenders by first identifying subtypes of female juvenile offenders based on risk factors identified in the feminist criminology and educational literatures. Second, the present study determines whether and how subtypes of offenders are different for males and females. Third, the study examines differences between female subtypes on a variety of educational and psychological outcomes in young adulthood. The study has implications for the improvement of prevention and intervention services which are delivered to female

juvenile offenders, and can alert relevant persons to the needs of different types of girls who enter the juvenile justice system.

Methods

The present study used data from the National Longitudinal Study of Adolescent to Adult Health (AddHealth; Harris, 2009). The AddHealth data were collected in four waves from 1994 through 2008. Adolescents were surveyed at school and some were interviewed at home in Wave I during the 1994-1995 school year when they were in 7th-12th grade. The parents of some of these students were interviewed as well. Additional students were interviewed at Wave II in 1996. Wave III data collection took place in 2001-2002 when the participants were between 18 and 26 years old. At Wave III some of the participant's romantic partners were interviewed as well. At Wave IV, which was collected from 2007-2008, the then 24-32 year old participants were interviewed again.

The sample used for this study included respondents who participated in in-home interviews at Waves I and IV of data collection and who reported engaging in at least one serious delinquent act at Wave I. In total, 4,370 respondents are included in the final sample. The final sample were 45.2% female, 55.2% White, 20.9% African American, and 16.6% reported Hispanic origin. On average, they reported engaging in 2 (Mean= 2.24; SD 1.65) delinquent acts during adolescence (between 7th and 12th grades).

The items used in this study included questions on a variety of topics assessed during both adolescence and adulthood. Demographic information including age, race,

gender, and grade was obtained at Wave I. Items assessing participant's experience of abuse, their crime victimization histories, educational difficulties and mental health/ substance abuse histories were collected at Wave I as well. At Wave IV, participants reported on their adult histories of criminal behavior, mental health problems and substance use, use of welfare services, educational attainment, and their having had an unwanted pregnancy.

Research question 1 seeks to determine what latent classes of female juvenile offenders could be identified using variables associated with both traditional feminist criminology risk factors for delinquency and educational variables, which are considered especially important for girls. Research question 2 replicates the analyses of RQ1 with males, and qualitatively examines differences between the male and female class breakdowns. For research question 3 the probabilities of each of the Wave IV outcomes for each identified latent class in the female sample are calculated to determine which subtypes of girls are at greatest risk for distal outcomes in the following domains: economic, psychological, educational, and criminal.

CHAPTER II

LITERATURE REVIEW

In 2014, nearly 1 million juvenile delinquency cases were processed in the United States, and in half of these cases a petition was filed (the equivalent of charges being pressed in the adult criminal justice system; Hockenberry & Puzzanchera, 2017). Of those prosecuted, 28% were female (Hockenberry & Puzzanchera, 2017). Importantly, the percentage of juvenile justice cases where the accused was female has gradually risen over time (Hockenberry & Puzzanchera, 2017). In other words, the rate at which males are processed is decreasing, and the rate at which females are processed is holding more steady (Hockenberry & Puzzanchera, 2017).

A variety of ecological factors put youth at-risk for juvenile delinquency. Considerable research shows that being male and being from a minority racial/ethnic background increase a youth's risk of delinquency, and also make it more likely that the child will penetrate deeper into the juvenile justice system (Hockenberry & Puzzanchera, 2017). Delinquency peaks in late adolescence (Loeber, Farrington & Petechuk, 2013; Piquero, Farrington, & Blumstein, 2007), but those who begin their offending careers at younger ages (10-14 years) are at greater risk (DeLisi & Piquero, 2011; Howell, 2009). Adolescents are also at greater risk for engaging in delinquent behavior when they have stronger associations with peers who are delinquent (Baglivio, Wolff, Piquero, & Epps, 2015). The most profound predictor of juvenile justice involvement is the amount and

severity of criminal offending (Assink et al., 2015). In addition to those described above, factors related to family, mental health, and school also predict juvenile delinquency (Assink et al., 2015).

Juvenile delinquents are more likely to have lived through adverse childhood experiences than non-offending youth (Assink et al., 2015; Dierkhising et al., 2013; Evans-Chase, 2014). In childhood, unstable, neglecting, and abusive family environments can lead to an increased likelihood of criminal behavior in adolescence, and in some cases are directly predictive of repeated arrests among youth (Gold, Sullivan & Lewis, 2011; Ryan, Williams & Courtney, 2013; Topitzes, Mersky & Reynolds, 2012; Wolff, Baglivio & Piquero, 2015). Often, child neglect and abuse can lead to involvement with child protective services (CPS). Children and adolescents involved in CPS are more likely to offend and to recidivate than youth who do not come into contact with CPS, especially if they are of racially diverse backgrounds (Bright & Jonson-Reid, 2015; Sickmund & Puzzanchera, 2014). Related to family problems, running away is predictive of extended juvenile justice involvement as well (Baglivio, Greenwald, & Russell, 2015).

In addition to disrupted family lives, mental health problems are uniquely predictive of juvenile delinquency (Assink et al., 2015). Initial contact with the juvenile justice system is predicted by substance use (Cottle, Lee, & Heilbrun, 2001; Dowden & Brown, 2002) and high parent ratings of impulsivity (Bechtold, Cavanagh, Shulman, & Cauffman, 2014; Sickmund & Puzzanchera, 2014). Once youth become involved with

the juvenile justice system, heavy substance use, externalizing disorders, and past suicide attempts have each been found to lead to a youth's increased likelihood to recidivate (Mallett, Quinn, & Stoddard-Dare, 2012; McReynolds, Schwalbe & Wasserman, 2010; Schubert & Mulvey, 2014; Sickmund & Puzzanchera, 2014).

Unique Risk Factors for Female Juvenile Offending

Prior to the early 2000's, the majority of research on youth who are involved with the juvenile justice system focused on male offenders and their needs. Female offenders were often excluded from research or were used for comparative purposes to highlight males' experience. In the 2000's, researchers, especially those from the feminist criminology field, suggested that girls who are involved in the juvenile justice system have "distinctive characteristics [from boys] that require special treatment" (Burgess-Proctor, 2006 p. 32). To fully understand the needs of offending girls and to appropriately program to assist them, female juvenile offenders need to be investigated independently of males. Several researchers have begun to engage in this line of research, and these studies have identified unique risk factors for female juvenile offenders that are distinct from what predicts offending across gender and specifically for male juvenile offending (Hubbard & Pratt, 2002).

This study will extend this line of research. The purpose of this study is threefold. First, I seek to identify subtypes of female juvenile offenders based on a group of important risk factors for female juvenile delinquency. Second, I seek to

determine whether subtypes of offenders are different for males and females, as theory would suggest they are. Finally, I seek to understand how the identified subtypes of female juvenile offenders fare in young adulthood by using class membership to predict distal outcomes. The findings can be used to improve prevention and intervention services which are delivered to female juvenile offenders, and can alert relevant persons to the needs of girls who entered the juvenile justice system for any of a variety of reasons.

The risk factors for female delinquency are numerous and cross a variety of life domains. During childhood and early adolescence, girls who go on to offend often experience violent and disrupted family lives. Their families are unable or unwilling to provide them with appropriate support, and this in turn makes these girls more likely to engage in crime (Biswas & Vaughn, 2011; Petrocelli, Calhoun & Glaser, 2003). For example, Walters (2013) found that a lack of parental involvement early in life mediated the relationship between juvenile delinquency and committing adult crimes only in females. Additionally, about 60% of incarcerated girls had a family member incarcerated prior to their own arrest (Robertson, Xu & Stripling, 2010).

In addition to unsupportive environments, adjudicated females often experience family lives that are violent and abusive. About half of incarcerated girls have witnessed domestic violence (Dixon, Howie, & Starling, 2004; Dixon, Howie, & Starling, 2005; Robertson, Xu & Stripling, 2010). Over half of offending girls reported experiencing physical abuse and a quarter of girls experience emotional abuse (Asscher et al., 2015;

Robertson, Xu, & Stripling, 2010). Girls are more likely than boys to report experiencing multiple types of maltreatment during childhood and adolescence as well (Asscher et al., 2015; Dixon, Howie, & Starling, 2005). A related factor is involvement with CPS. In one study about 14% of girls reported being placed in foster care during the course of their lives (Robertson, Xu, & Stripling, 2010). Those youth who enter the juvenile justice system following CPS involvement are significantly more likely to be girls than to be boys, likely because of increased likelihood of experiencing sexual abuse (Ryan, Williams, & Courtney, 2013). Combined, these results suggest that negative family experiences play a more critical a role in girls' delinquency than they do for boys.

Among female juvenile offenders, violent and abusive interactions are likely to be experienced outside of the family as well (DeHart, 2009). Female juvenile offenders have an increased likelihood of experiencing trauma (Asscher et al., 2015; Kane & DiBartolo, 2002; Martin et al., 2008). On average, juvenile justice-involved girls experienced approximately 3 traumatic events in their lives, with one of those events being potentially life-threatening for 85% of the girls (Van Damme, Colins, DeMaeyer, Vermeiren, & Vanderplasschen, 2015). This is more trauma than reported as occurring among incarcerated male juveniles (Asscher et al., 2015; Kane & DiBartolo, 2002; Martin et al., 2008).

Girls are more at risk than boys for some types of physical trauma than others: violent crime victimization and dating violence. Approximately 14% of girls in one study reported that they had been the victim of a violent crime, and 16% had witnessed a

violent crime (Robertson, Xu & Stripling, 2010). Over half of girls in multiple studies reported that they had been a victim of violence committed by a romantic partner (Kelly, Cheng, Peralez-Dieckmann & Martinez, 2009; Oudekerk, Burgers, & Reppucci, 2009).

In addition to the traumas described above, sexual trauma is especially problematic in populations of female juvenile offenders. Female juvenile offenders were more likely to report experiencing sexual assault than their male counterparts (70% of girls reported sexual abuse history versus 30% of boys; Miazad, 2002). Additionally, up to 50% of female juvenile offenders reported being a victim of sexual abuse (Abram et al., 2003; Dixon, Howie, & Starling, 2004; Dixon, Howie, & Starling, 2005; Robertson, Xu & Stripling, 2010). Sexual abuse and assault are especially important problems for female juvenile offenders because they are associated with significant psychological distress (Dixon, Howie, & Starling, 2005; Moore, Gaskin & Indig, 2013). Moreover, a history of sexual abuse is the best predictor of recidivism in females as opposed to for males (Conrad, Tolou-Shams, Rizzo, Pacella & Brown, 2014).

Mental health disorders can stem from distressing and abusive childhoods, and this pattern holds for female juvenile offenders as well (Carlson & Shafer, 2010; Hedtke et al., 2008; Turner, Finkelhor, & Ormrod, 2006). In fact, girls who become involved with the juvenile justice system have more mental health needs than boys in the system and more than the general adolescent population (Abram et al., 2003; Cook et al., 2010; Cruise et al., 2007; Dembo, Williams & Schmeidler, 1993; Kataoka et al., 2001; Lopez-Willams, Stoep, Kuo & Stewart, 2006). Estimates suggest that 75% of female juvenile

offenders have at least one psychological disorder, and most have more than one (Teplin, Abram, McClelland, Dulcan, & Mericle, 2002). Internalizing disorders are more common for female juvenile offenders than for males, with about 30% of girls experiencing depressive and/or anxiety disorders (note that internalizing disorders are more common in girls regardless of offending status as well; Cauffman et al., 2004; Graves, Frabutt & Shelton, 2007; Teplin et al., 2002; Ritakallio, Kaltiala-Heino, Kivivuori, Luukkaala & Rimpela, 2006; Sevecke, Lehmkuhl, & Krischer, 2009; Wasserman et al., 2010).

Not only are the rates of mental illness among female juvenile offenders problematic, but mental illnesses and psychological difficulties have been identified as predictors of more severe offenses and juvenile recidivism for girls. The most psychologically in-need girls, based on elevated ratings on the Achenbach System of Empirically Based Assessment (ASEBA) Youth Self-Report (YSR) depression and anxiety scales, were more likely to be classified as severe and persistent offenders as compared to groups of girls with less serious criminal histories (McDougall, Campbell & Santor, 2013). A different study found that having a mental health disorder predicted committing more numerous offenses and longer stays in juvenile detention (Welch-Brewer, Stoddard-Dare & Mallett, 2011). The connection between mental health problems and more severe offending is amplified when substance use/abuse co-occurs with mental illness. A dual diagnosis of psychiatric and substance use disorders

predicted girls would be four times as likely to reoffend than girls with no disorders (McReynolds et al., 2010; Tolou-Shams et al., 2014).

Substance use on its own can be problematic for female juvenile offenders as well. Female offenders exhibit higher rates of substance use than typical female adolescents, but the rate is lower than is found in male juvenile offenders (Guthrie et al., 2012). Well over half of incarcerated girls report using illegal or illicit substances, including alcohol, in the past (Kataoka et al., 2001; Robertson, Xu & Stripling, 2010). In one study, about one third of female juvenile offenders admitted to being under the influence while committing a crime (Palmer, Jinks & Hatcher, 2009), and drug use was found to be predictive of prostitution in another (Reid & Piquero, 2014).

Girls who become involved with the juvenile justice system are additionally at high risk for physical health and sexual health problems (Kane & DiBartolo, 2002). In one study, 58% of incarcerated girls engaged in unsafe sexual practices and 19% had contracted a sexually transmitted infection (STI; Biswas & Vaughn, 2011). These youth experience pregnancy at rates of up to 30% (Crosby, Salazar, DiClemente, Yarber, Caliendo & Staples-Horne, 2004; Khurana, Cooksey & Gavazzi, 2011; Lawrence, Snodgrass, Robertson, & Baird-Thomas, 2008; Robertson, Xu & Stripling, 2010; Williams & Hollis, 1999). Female juvenile offenders who were pregnant were more likely to have other significant physical health risks as well (Khurana et al., 2011). For example, they less frequently received physical health check-ups (Khurana et al., 2011). Related to STI contraction and pregnancy are a variety of sexual health risk behaviors.

Female juvenile offenders report more numerous sexual partners and less contraceptive use than non-offending girls (Voisin, DiCelmente, Salazar, Crosby & Yarber, 2006). These behaviors have been related to child maltreatment, low self-concept, and substance use as a coping strategy (Lopez, Kopak, Robillard, Gillmore, Holliday & Braithwaite, 2011).

Clearly girls in the juvenile justice system exhibit unique patterns of risk factors and have a general set of needs which differs from their male counterparts. In addition to different needs, research suggests that girls are subjected to differential treatment by the juvenile justice system as well (Chesney-Lind & Merlo, 2015; Peterson & Howell, 2013). Currently, the majority of juvenile justice systems apply the same policies, attitudes, and interventions to male and female offenders, even though male and female offenders have different needs (Peterson & Howell, 2013). Once alleged female juvenile offenders enter the system, their gender impacts their outcomes (Peck, Leiber & Brubaker, 2014). The majority of processed offenses committed by females are status offenses or low-level, nonviolent offenses (Hockenberry & Puzzanchera, 2017). However, girls are more likely than their male counterparts to be charged with a status offense (versus having no charges filed) and to have petitions filed against them (versus cases being dropped) for such an offense than males (Barrett, Katsiyannis & Zhang, 2010; Spivak, Wagner, Whitmer & Charish, 2014).

The over-penalizing of low level offenses in female subpopulations suggests gender bias in the juvenile justice system. Chesney-Lind and Merlo (2015) theorize that

the juvenile justice system "criminaliz[es] girls' efforts to escape from abuse and other conditions of exploitation, maltreatment, and neglect" (p. 72). For example, girls are disproportionately charged with running away (Hockenberry & Puzzanchera, 2017); however, these girls may be running away from a home situation in which they are unsafe. Feminist criminologists argue that because the juvenile justice system fails to take gender-specific problems into account they punish girls for their situations instead of assisting them to escape them (Chesney-Lind & Merlo, 2015).

Overall, girls are a unique subpopulation who should not be combined with their male counterparts in terms of identification of their needs. First, girls in the juvenile justice system have more severe levels of risk than boys (Zahn et al., 2010). They experience unique difficulties with internalizing disorders and sexual trauma, as well as more severe family difficulties than boys. Finally, they tend to perpetrate lower-level crimes than boys in general.

A Missing Link: The Role of Education

The accumulation of research described here demonstrates girls' increased risk for abuse and trauma as well as mental and physical health problems. However, one important life domain in the investigation for risk for juvenile offending has been largely neglected: education. The role of educational variables as risk factors for criminal behavior is important for understanding both the development and implications of juvenile delinquency for many reasons. Across genders, behavioral engagement and

academic success, as well as feelings of school belongingness, serve as important predictors of delinquency (Baglivio, Greenwald, & Russell, 2015; Hartman, Turner, Daigle, Exum & Cullen, 2009).

Behavioral engagement within school (attending, performing well academically, etc.) is one especially important predictor, as youth who fail to engage with and succeed in school are more likely to be arrested than those students who do so (Henry, Knight, & Thornberry, 2011; Lee & Lerner, 2011; Yun, Cheong & Walsh, 2014). Dropout warning indication systems, which take into account academic performance as well as other behavioral engagement variables, are predictive of criminal behavior in high school and in young adulthood (Henry, Knight, & Thornberry, 2011). Further, empirically identified groups of students with low behavioral engagement with school and low school connectedness had lower grades and were more likely to engage in delinquent behaviors (Lee & Lerner, 2011). Academically, students who demonstrate poor performance are more likely to be arrested than those who perform well in school (Yun et al., 2014). A meta-analysis conducted by Maguin and Loeber (1996) explored the importance of academic achievement and its relationship to delinquency specifically. Across studies, they found that lower academic performance was related to more severe and longer lasting delinquency. Behaviorally, youth who go on to be incarcerated generally demonstrate a pattern of poor behavior in school that began early in their educational careers (Gottfredson, 2001; Moffitt, 1993). Throughout their education, these students are more likely to have problems with fighting (Zhang, Katsiyannis,

Barrett & Willson, 2007), truancy (Blomberg, Bales & Piquero, 2012; Zhang et al., 2007), and bullying (Cullen, Unnever, Hartman, Turner & Agnew, 2008).

A final important predictor of delinquency is special education status. Students who are classified with Emotional Disturbance (ED) or a Specific Learning Disability (SLD) are more likely to engage in delinquent behavior and to become involved with the juvenile justice system than their peers in general education (Grigorenko et al., 2015; Quinn, Rutherford, Leone, Osher, & Poirier, 2005). Special education status additionally predicted recidivism. Incarcerated youth who receive special education services are up to 75% more likely to be rearrested than their peers who are not eligible for special education (Barrett et al., 2010).

The Role of Education for Female Offenders

Few studies have examined the impact of educational variables on female juvenile offenders uniquely. Some variables which are predictive in cross-gender samples of juvenile offenders such as disruptive behavior and truancy continue to be predictive in female samples (Belknap, 2006; Mullis et al., 2004). Notably, female juvenile offenders have often experienced these risk factors more severely than their male offender counterparts. Offending girls have more severe academic difficulties than offending males and have on average spent less time in instruction than their male peers as well (Timmons-Mitchell et al., 1997). Female offenders are more likely to drop out of school than similar males, often because of trouble "keeping up" (p. 63) or leaving their homes (Belknap, 2006). Finally, feelings of not belonging to school put girls at higher

risk for delinquency than males (Wood, Foy, Goguen, Pynoos & James, 2002). School factors clearly have important implications for juvenile delinquency researchers, but may be especially critical to understanding how to best prevent and intervene on female juvenile offending.

Theoretical Explanation: General Strain Theory and Feminist Pathway Theory

General Strain Theory (GST) is a criminology theory that has been used as a framework for connecting negative circumstances in childhood with the development of delinquent activity across genders (for example, Wolff et al., 2015). In GST, strains are any stressful and negative life event a person has to endure (Agnew, 2006). They are, essentially, what psychology terms risk factors. Strains create a negative emotional state in individuals, and according to GST, engaging in crime is one possible way of reducing or eliminating the strain (Agnew, 2006). Strains can be objective or subjective, and the emotional response that results from a strain can range from no response to depression or anger (Agnew, 2006). Strains can fall into a variety of categories and across a variety of settings, some of which are more likely to result in criminal coping than others. Agnew (2006) identifies ten categories of strain which are most likely to result in criminal coping: the failure to achieve core goals (money, autonomy, masculine status), parental rejection, strict and excessive discipline, child neglect or abuse, negative school experiences (poor grades, poor student-teacher relationships), work in the secondary labor market, homelessness, abusive peer relations, criminal victimization, and the

experience of prejudice or discrimination (Agnew, 2006). GST is summarized in Figure 1 below.

GST is a gender neutral theory; however, there is significant evidence to suggest that a gender responsive view of juvenile offending is called for. While many of the strains described by Agnew apply to female juvenile offenders, it is likely that some are more important in examinations of this population than others. Additionally, because tests of GST have been conducted exclusively with male or mixed-gender samples, strains which are critical risk factors for girls may not be included in this model.

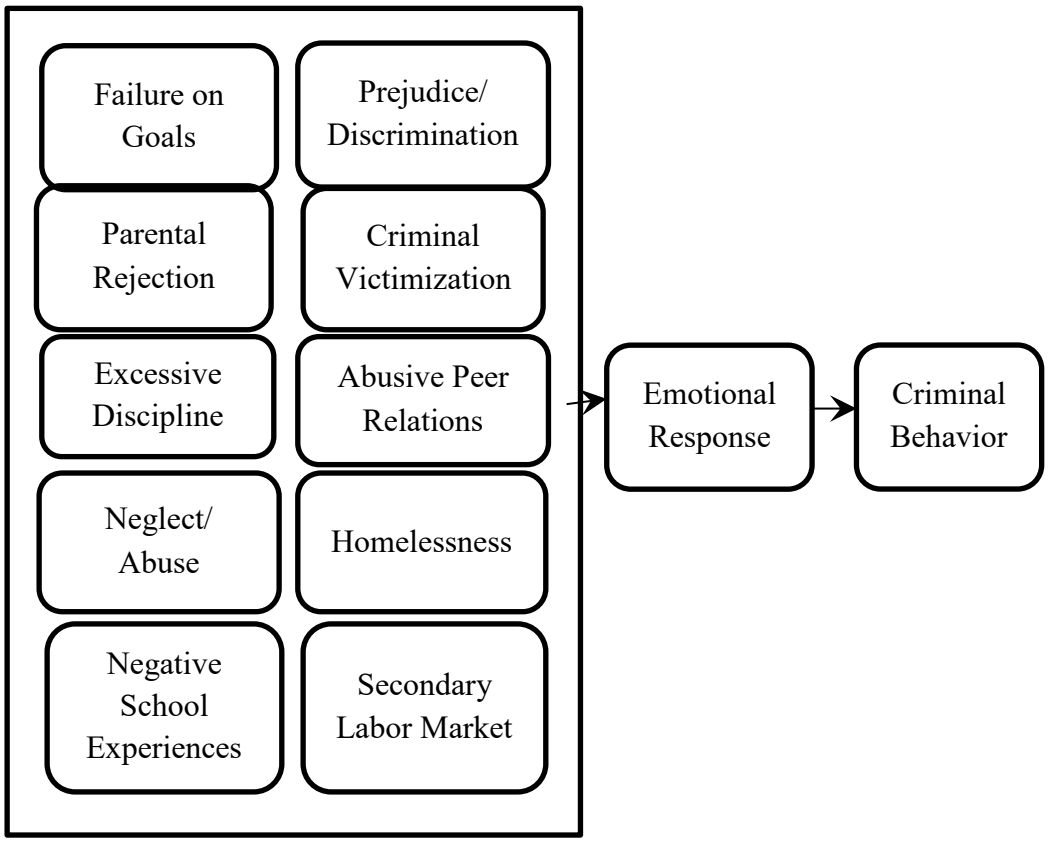

Figure 1. Visual representation of GST.

Notably, many of the strains Agnew (2006) describes coincide with the Feminist Pathway theory. While there is significant overlap between the theories, Feminist Pathway acknowledges that crime victimization (especially sexual and/or violent victimization) and relationship problems are more significant risk factors in female versus male samples (both adults and juveniles; DeHart et al., 2014). The trauma symptoms and mental health problems which result from experiencing criminal and relational victimization are critical to understanding female offenders as well (DeHart et al., 2014). Belknap and Holsinger (2006) identify abuse histories, family relationships, mental health problems, and to a lesser extent school experiences as central to the development of delinquency in girls. These risks form a unique pathway into criminal offending which is characterized by persistent and severe trauma and associated relational, behavioral, and emotional risks (Belknap & Holsinger, 2006; Chesney-Lind & Sheldon, 2003; DeHart et al., 2014; Dehart, 2009; DeHart, 2008).

In this model accumulated risk factors lead to internalizing problems (drug addiction, depression, etc.) which then combine to result in criminal behavior (Belknap, 2006; Chesney-Lind & Shelden, 2003; Salisbury &Van Voorhis, 2009). DeHart (2008) and Belknap and Holsinger (2006) each separately confirmed this finding in studies where incarcerated women and girls, respectively, connected their own experience of trauma to their committing crimes. This pathway, while developed through qualitative research, has been confirmed statistically (Jones, Brown, Wanamaker & Greiner, 2014;

Kjelsberg, 2002; Moffitt, 1993; Silverthorn & Frick, 1999). The Feminist Pathway theory is summarized in Figure 2 below.

Both GST and the Feminist Pathway theory can paint a picture of the different obstacles youth have to overcome to become successful members of society, but they can also serve as explanations for behavior that society would not condone such as criminal behavior. GST describes, in a general sense, what might put a child at greater risk for engaging in delinquent behavior. The Feminist Pathway theory narrows in more closely on those risk factors that are most critical in discussions of female offending. Specifically, the theory focuses on the severity of victimization and the sexual nature of victimization in female samples and the impact of interpersonal relationship problems of female offenders.

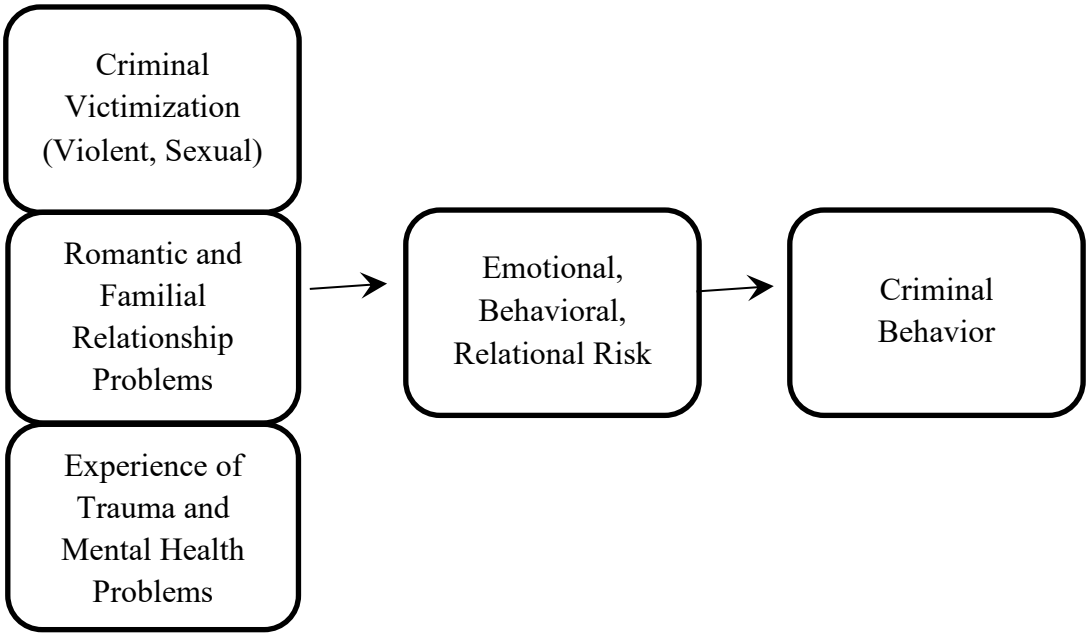

Figure 2. Visual representation of Feminist Pathway theory

Combining these theories can allow researchers to examine in a more nuanced fashion how female offenders differ from their male counterparts in terms of their unique risk. The Feminist Pathway theory also extends beyond GST in that in includes behavioral risk and relational risk as mediating factors between strains and criminal offending. A combined representation of these theories is presented in Figure 3 below.

When researchers and practitioners can understand the obstacles that girls from different situations face, they can plan and implement more targeted interventions to reduce additional risk factors and their effects. To make interventions more targeted, girls need to be treated as a heterogeneous offending population. Feminist criminology scholars have pointed out that female offenders have been treated largely as a homogeneous group in both research and in practice (Van Dieten, Jones, & Rondon, 2014). This is a disservice to these girls because their needs are not only a function of their gender. In other words, we cannot assume that all female juvenile offenders have the same risk factors or will have the same intervention needs, just as we cannot assume that male and female offenders will be the same.

A commonly used group of methodologies for examining heterogeneity within a population is cluster analyses. Cluster analyses are especially beneficial in developmental research because they allow for the identification of naturally occurring groups who may differ in a variety of ways (Lanza & Cooper, 2016). In addition to examining heterogeneity and understanding patterns of behavior, cluster analyses can aid in intervention design and planning. Taking note of commonly co- occurring clusters of

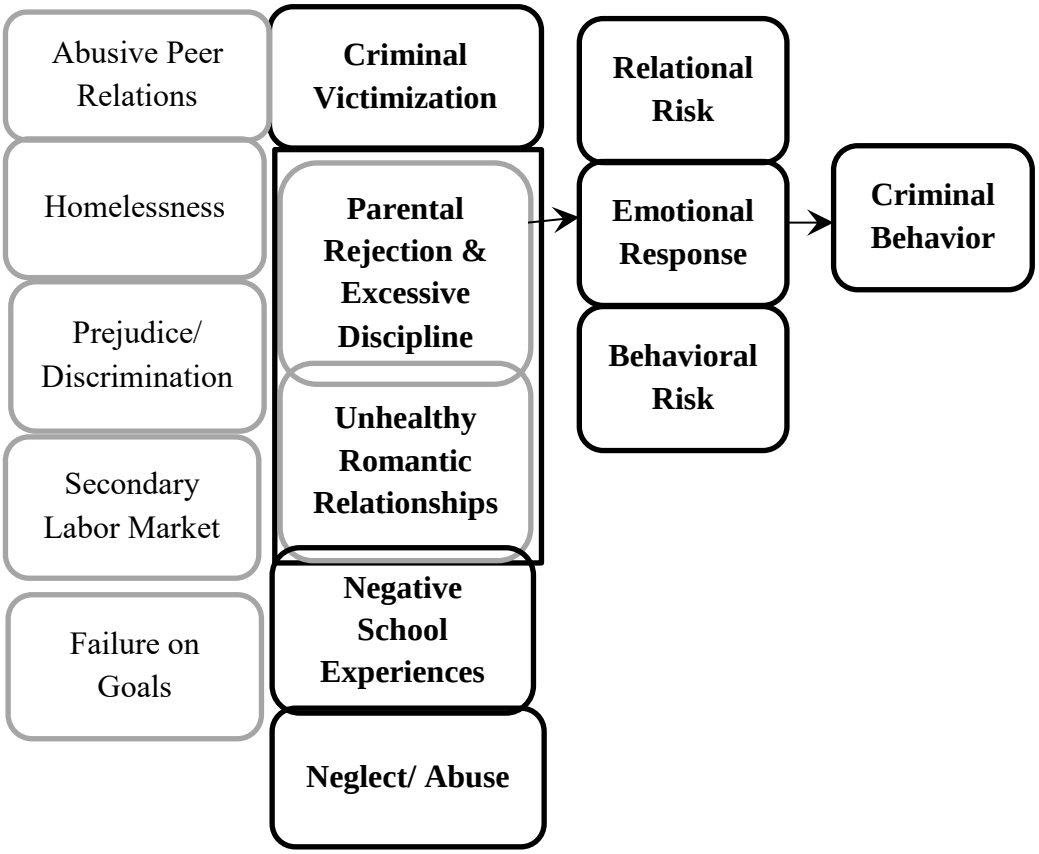

Figure 3. Visual representation of combined GST and Feminist Pathway theory

strains can allow for identification of girls with high levels of risk factors across a variety of domains (Bright & Jonson-Reid, 2015). While there are limited studies of female juvenile offenders using clustering analyses, the results of these studies are informative.

Cluster Analyses on Female Juvenile Offenders

There have been three studies that have used cluster analysis to identify clusters or subtype analyses of female juvenile offenders based on their patterns of risk factors.

The first, by Cruise and colleagues (2007), conducted a cluster analysis of psychological variables including Massachusetts Youth Screening Instrument (MAYSI) 2 scale scores, trauma symptoms, abuse history, past psychological diagnoses, past suicide attempts and substance use. They also included demographic variables such as age, ethnicity, offense history, prior placements, and parent history of incarceration. A three cluster solution of female offenders were identified: a cluster with high mental health symptoms only, a cluster with high substance abuse and high mental health symptoms, and a cluster with no symptoms. Not surprisingly, the cluster which was high in substance abuse and mental health problems experienced the most traumas, and were younger than their peers without mental health and/or substance abuse needs.

The second cluster analysis was conducted with a sample of female juvenile offenders deemed high-risk to investigate patterns of offending style (Odgers et al., 2007). Variables measured included self-reported offending, as well as the experience of abuse, exposure to community violence, psychopathology, and other demographic variables like age at first offense and parent incarceration history. A three cluster solution resulted in the best model fit: a violent and delinquent cluster, a delinquent cluster, and a low offense cluster. Violent and delinquent girls had experienced the most traumas and met criteria for more psychological disorders.

Guthrie and colleagues (2012) conducted a cluster analysis on minority female juvenile offenders. Clusters were formed based on parent-child relationship, neighborhood factors and sexual trauma. Additionally, demographic factors such as

physical health, number of sexual partners, public assistance status, age and ethnicity were included. Individual factors like self-reported offenses, self-esteem, anxiety and depression symptoms, and substance use were included as well. Three clusters resulted. The low-to-moderate health risk group reported mild stress, low levels of risk behaviors, and high overall health. The high mental health risk group reported less stress, moderate risk behaviors, and lower overall health combined with greater mental health problems. The final class, the compound risk group, demonstrated high risk behaviors and higher stress, but near average levels of mental health and physical health problems.

Notably, none of these studies included educational variables as risk factors (clustering variables). This is a critical gap in the research on preventing female juvenile delinquency because educational variables are strongly associated with female juvenile offending (Belknap, 2006) and with outcomes post-release. Educational variables could be an important, but understudied, target for prevention and intervention efforts. Additionally, none of the previously mentioned cluster analysis studies examined outcomes for their defined groups other than recidivism. While preventing recidivism on its own is a worthy goal, recidivism does not occur in isolation, and, as these cluster analyses demonstrate, is the result of difficulties across a variety of life domains.

Predicting Distal Outcomes

When interventions are designed, they typically seek to improve some outcome in the future. For example, an intervention designed to remediate low reading skills might

judge its effectiveness based on students' reading performance a year in the future. For an intervention designed to improve the outcomes of girls who are incarcerated during adolescence, it makes sense that the outcomes of interest be measured in young adulthood. Importantly, just as risk factors can come from a variety of life domains, outcomes of importance can cross domains as well. This study examines risk factors for delinquency from educational, interpersonal, trauma-related, and psychological domains, and so the same domains are examined as possible targets for intervention in young adulthood. Examining diverse outcomes in young adulthood for female juvenile offenders allows for increased knowledge of the domains in which these girls struggle after their release from the juvenile justice system. Identifying domains where clusters of girls are likely to struggle allows for targeted interventions for each group.

Naturally, a continuing examination of juvenile offenders would also seek to understand adult criminal behavior. Adult criminal behavior is uncommon in female juvenile offenders (Bright & Jonson-Reid, 2015). In one study, only about 7% of female juvenile offenders were found to have recidivated within 2 years post-release (Jones et al., 2014) and only about 10% go on to enter the adult corrections system (Bright & Jonson-Reid, 2010). This is different from male juvenile offenders, of whom over half will go on to enter the adult corrections system (Lancot et al., 2007).

Although they are unlikely to be arrested as adults, girls with offending histories suffer significantly worse than males in other life domains. This makes sense in light of research indicating that experiencing more traumatic and adverse events in childhood is

related to negative physical, social, and mental outcomes (Bellis, Lowey, Leckenby, Hughes, & Harrison, 2014; Hamburger, Leeb, & Swahn, 2008). Taking this into account, identifying key areas of need for unique subgroups of female juvenile offenders is critical for two key reasons. First, research suggests that post-release outcomes across life domains are worse for female juvenile offenders than for their male counterparts (Cauffman, 2004). Second, girls enter the juvenile justice system for varying reasons and as a result of experiencing different strains and risk factors, so it is reasonable to assume that they will have different intervention needs in their futures as well (Odgers et al., 2007).

Economic outcomes are especially poor for female juvenile offenders in young adulthood (Lancot, Cernkovich, & Giordano, 2007). Previously incarcerated girls held jobs for less time than non-incarcerated females and previously incarcerated males (Lancot et al., 2007), and over half of girls incarcerated during adolescence go on to use welfare services (Bright & Jonson-Reid, 2010). Their male counterparts use welfare services at slightly lower rates, and for a length of time which is significantly less (Lancot et al., 2007). This finding may be related to rates of early pregnancy, which is additionally more common among girls who were incarcerated as juveniles than those who were not (Lancot et al., 2007). Economic instability as a result of lower educational attainment, decreased work ability, and early childbearing is especially problematic for young women, as they are more likely to be primary caretakers of children than are men (Cawthorne, 2008).

Another important area of concern with incarcerated girls as they age is unstable, unhealthy romantic relationships. Abusive and violent relationships are more common for girls who were incarcerated during adolescence than non-offending girls and offending males (Bright et al., 2011). When girls who were incarcerated participated in follow-up interviews about 2 years after their release (when they were, on average, 19 years old) over 40% continued to report experiencing partner abuse in the past 6 months, and over 50% reported perpetrating abuse against their partner (Oudekerk et al., 2010).

Formerly incarcerated young women are also at greater risk than men for mental health difficulties. Mental health problems are more common for girls incarcerated in adolescence than for non-offending girls and for offending males (Bright et al., 2011; Lancot et al., 2007). Rates of substance use are similar for previously incarcerated males and females as they enter adulthood (Bright et al., 2011; Lancot et al., 2007). Notably, girls with incarceration histories are less likely than girls who were never incarcerated to use publicly funded mental health and/or substance user services (Bright & Jonson-Reid, 2010). The effects mentioned here are more pronounced with girls who evidenced more frequent offending (Tille & Rose, 2007). Interestingly, no subtyping studies were identified which examined educational difficulties during adolescence and their effects on future outcomes when combined with delinquency, and no studied examined distal educational outcomes.

Examining future outcomes of female juvenile offenders separately from males is also important for two reasons. First, female juvenile offenders will go on to face

different challenges from their male counterparts. Second, the services offered by juvenile justice systems to females often do not apply to them. The vast majority of programs to assist juvenile offenders are designed for males—almost no programs were designed specifically for girls or for cross-gender use (Garcia & Lane, 2013). The same can be said for risk assessment measures, as it is unclear whether or not these measures are valid for girls (Emeka & Sorensen, 2009; Schwalbe, 2008). This lack of treatment options, in spite of evidence of girls' unique and significant risk factors (mental, physical and sexual health needs, the experience of trauma, etc.), suggests that research should be conducted which can inform the development of programs to intervene with female juvenile offenders to improve their outcomes long-term and reduce their unique risk.

Study Purpose

The purpose of this study is threefold. First, I seek to identify subtypes of female juvenile offenders based on risk factors which are unique to female gender, as well as more traditional risk factors and educational risk factors. Second, I seek to determine how subtypes identified in a male sample differ from those identified in a female sample. Including variables which measure uniquely female risk is important because male and female juvenile offenders are posited to exhibit different, though possibly overlapping, paths toward delinquency. Including educational variables is important because factors like academic success, school connectedness, and truancy are key risk and protective factors for delinquency (Hawkins, Graham, Williams, & Zahn, 2009). Additionally,

educational factors are strong predictors of positive behavioral, social, and emotional outcomes in adolescence and adulthood (Monrad, 2007). Despite these findings, the literature base on female juvenile offenders has largely ignored important risk factors in the domain of education.

Finally, I seek to use female subtype membership to predict a variety of distal outcomes measured in young adulthood. Determining what negative outcomes different types of girls might have can allow for targeted assessment and intervention. Overall then, this study will allow for the identification of uniquely female risk profiles which are extended to targets for intervention measured in the future.

CHAPTER III

METHODOLOGY

The purpose of this study is to identify subtypes of female juvenile offenders which take into account risk factors across a wide variety of life domains, including education, and to understand what targets for intervention might be key in intervening with these girls based on their future outcomes. This study answered three research questions which fill the previously described gaps in the literature. The first research question asked what subtypes of girls who engage in delinquency can be identified when education and school-related variables are taken into account along with more traditionally measured risk factors (RQ1). The second research question asked how female subtypes differ from male subtypes identified in a separate analysis when educational variables are included (RQ2). The third research question asked how each identified female subtype fared on educational (i.e. graduation, college attendance), social (i.e. teen pregnancy, occupational status), psychological, and criminal (i.e. adult re-arrest) outcomes (RQ3).

Sample

Data from the National Longitudinal Study of Adolescent to Adult Health (AddHealth; Harris, 2009) were analyzed. The AddHealth data was collected in 4 waves over a time period spanning 14 years, from 1994 through 2008. Wave I of data

collection occurred in 1994 and 1995. At Wave I, 80 high schools diverse in terms of their size, type, census region, urbanicity, and percentage of white students, and a feeder middle school, were selected for participation in the study. If selected schools were unable or unwilling to participate, they were replaced with similar high schools and respective feeder schools.

Consent was obtained from the parents of students at each of the middle and high schools. Consented participants were given a unique identification number to protect their identity while also allowing their questionnaires and survey responses to be linked. At Wave I, an in-school questionnaire was provided to a total of 90,811 students from 145 middle and high schools. The administrators of these schools each responded to questionnaires about their schools as well (n=144). From those students who completed the in-school questionnaire a smaller group were sampled to complete an in-home computer-assisted interview (n= 20,745). Of those students who completed the in-home interview, 17,670 of their parents completed an interview at Wave I as well.

At Wave II, collected in 1996, the majority of original Wave I participants were re-interviewed, excluding 12th graders and a sub-sample of disabled students. Their parents were not re-interviewed at Wave II, but 128 school administrators responded to questionnaires. Wave III of data collection occurred in 2001 and 2002. A computer-assisted in-home interview was delivered to 15,170 of the Wave I participants who were over 18 years of age. The Wave IV data was collected from 2007 to 2008. 15,701 of the original Wave I participants completed Wave IV measures.

For the purposes of this study, all participants who responded to the Wave I in-home interview and the Wave IV in-home interview will be included. This ensures that information from the participants' early adult years is available. Wave IV was chosen as the wave from which to obtain distal outcomes (as opposed to Wave III) because the participants were further into young adulthood. They have had more time to encounter different social systems, to secure jobs, etc. Additionally, only those participants who reported engaging in at least one serious delinquent act were included in the study. Serious delinquency was measured using a scale developed by Guo (2011). Engaging in delinquency was chosen as the inclusion criteria for this study over arrest because of the very small number of participants who reported arrest as juveniles (458 boys and 89 girls). After removing those youth who did not report serious delinquency, the final sample for the study included 4,370 total participants, 2,397 male and 1,973 female.

Measures

Demographics

Demographic variables including gender, age, grade in school, race/ethnicity, and parents' level of education were included in the analysis. Demographic information about respondents was obtained during the Wave I in school questionnaire. Age, gender, and grade were reported by students. Participants' race/ethnicity (white, black or African American, Hispanic or Latino, other) was obtained from the student's questionnaire responses as well. Parents' education level at Wave I was used as a proxy

for socioeconomic status. This choice was made because parent education is highly associated with income over time and because it is a stable measure of SES (Sirin, 2005).

Past delinquency. Self-reported delinquency was measured using a Serious Delinquency Scale used by Guo (2011). Ten items assessing how often participation in a variety of delinquent activities including theft, selling drugs, and physical violence occurred were used to create the scale. For each of the 10 items, responses were coded as ever or never occurring, and then responses to the 10 items were summed to create the scale. Participants who reported engaging in one or more of the items on the Serious Delinquency Scale were included in the analyses. Items used to construct the Serious Delinquency Scale are displayed in Appendix A

Research Questions 1 and 2

Research questions 1 and 2 each focused on characteristics of the participants while they were adolescents. Variables which were included in analyses for RQ1 and RQ2 include variables associated with abuse, violent victimization, relationships, school, mental illness and substance abuse, as well as prior delinquency. In some cases, the variables used to create classes will be formed from a combination of multiple variables. A summary of the variables used to answer research questions 1 and 2 are displayed in Appendix B.

Child Abuse. A participant's experience of child abuse was measured based on responses to two questions asked during the Wave IV in-home interview. A participant

was coded as having experienced physical abuse in childhood if they responded yes to the item asking retrospectively whether their parents had slapped/kicked/hit them when they were children. A participant was coded as having experienced sexual abuse if they responded yes to the item asking if a parent or caregiver had "touch[ed] you in a sexual way, force[d] you to touch him or her in a sexual way, or force[d] you to have sexual relations."

Crime victimization. Crime victimization was measured using the Violent Crime Victimization Scale used by Tillyer and Tillyer (2016). Participants reported whether they had been shot, cut or stabbed, jumped, or had a knife pulled on them in the past 12 months. Participants who reported experiencing these acts were coded as 1 and those who reported not experiencing these acts were coded as 0. Responses to the 4 items were summed to create the crime victimization scale variable.

Mental health problems. Questions from the Wave I in home interview were combined to assess for respondents' experience of mental health problems. For the present study, depression and anxiety scales were included.

Depression. The AddHealth study assessed participants for depression using a modified version of the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977). Other studies using AddHealth data have used the full version (Feigelman, Joiner, Rosen, Silva & Mueller, 2016) and a 9-item version developed by Santor and Coyne (1997) successfully (Ehlinger & Blashill, 2016). Because the modified version better assesses for depression than the original (Santor & Coyne, 1997)

the 9 item version was used in this study. The 9 items were presented during the Wave I in-home interview, and rated on a scale from 0 (never or rarely) to 3 (most of the time or all of the time). Responses to the 9 items are summed to create the scale score. The internal consistency for the overall sample was 0.81.

Anxiety. An anxiety scale has additionally been developed through confirmatory factor analysis for AddHealth data by Jacobson & Newman (2014; 2016). The scale was composed of 6 items which were measured as part of the general health section of the in-home interview at Wave I. The 6 items are rated on a 5 point scale from 0 (never) to 4 (every day). Responses to the 6 items were summed to create the scale score. The internal consistency for the overall sample was 0.59.

Substance use/abuse. Substance use was measured using the following 4 items: "Have you had a drink of beer, wine, or liquor—not just a sip or a taste of someone else's drink—more than 2 or 3 times in your life?"; "How old were you when you tried marijuana for the first time? If you never tried marijuana, enter 0."; "How old were you when you tried any kind of cocaine— including powder, freebase, or crack cocaine—for the first time? If you never tried cocaine, enter 0"; and "How old were you when you first tried any other type of illegal drug, such as LSD, PCP, ecstasy, mushrooms, speed, ice, heroin, or pills, without a doctor's prescription? If you never tried any other type of illegal drug, enter 0." Responses to these items were recoded categorically as "never used" or "used". Response were then summed to create a scale titled Number of Substances Used, which ranged from 0 to 4.

Education. Variables related to a participant's educational attainment and their relationships with their school were included in analyses as well.

Suspension and expulsion. Exclusionary discipline experiences were measured by two variables measured at Wave I: having ever experienced out of school suspension and having ever been expelled. Students who reported being suspended or expelled one or more times were coded as being excluded from school.

Academic performance. Student's academic performance was measured by averaging the student's cumulative grade point average across their English/language arts, math, history/social studies and science classes from the most recently completed grading period. Reported grades were coded based on the commonly used 4 point scale (a self-reported A is coded as 4, a B is coded as 3, etc.) Similar methods have been used by other researchers to gain an estimate of participants GPAs (Carbonaro & Workman, 2016; Delgado, Ettekal, Simpkins, & Schaefer, 2015).

School belongingness. As school belongingness has been found to be an important risk factor in the development of delinquency (Wood et al., 2002) perceptions of school belongingness were included in analyses as well. School belongingness was analyzed as a combination of two variables- feelings of being a part of one's school and happiness about being at one's school. Each variable was rated on a scale from 1 (strongly agree) to 5 (strongly disagree). Similarly to Delgado et al. (2015), the items were reversed scored so that larger values would indicate more feelings of school belongingness. Responses to the 2 items are summed to create the scale score. This

scale has been found to be a reliable and valid measure of school belonging in other studies using AddHealth data (Delgado et al., 2015).

Unhealthy romantic relationships. The experience of unhealthy romantic relationships is a significant contributor to criminal behavior, especially among girls (Cauffman, Farruggia, & Goldweber, 2008). However, the sample for the present study lacked a sufficient number of participants who completed items assessing relationship violence. Of the 6,069 adolescents who were included in the study at Wave I, just 843 responded to the Wave II questions assessing intimate partner violence. As a result, these variables were not included in the model.

Research Question 3

Research question 3 focused on characteristics of the participants when they have reached young adulthood (the distal outcomes for adolescents who report engagement in serious delinquency). Variables which were included in analyses for RQ3 included variables associated with education, economic stability, pregnancy, adult crime, substance use, and mental health. A summary of the variables used to answer RQ3 is displayed in Appendix C.

Educational attainment. A participant's success in educational outcomes was measured by the highest degree they had completed at Wave IV. To ease interpretation, responses were recoded into 4 categories: completion of less than a high school degree or equivalent, completion of a high school degree or equivalent, completion of some education post-high school, and completion or a bachelor's degree or higher.

Economic stability. Participant's economic stability was measured by their self-report of their household income at Wave IV. In discussions of material deprivation, economists often use the marker of income below twice the poverty line (Schierholz, 2009). In 2008, this income level was $34,692 (Schierholz, 2009). Participants were classified as having household income above or below the poverty line based on 2008 data, In Wave IV, household income data were collected categorically, so those with household incomes at the $30,000 to $39,999 category and below were considered to lack economic stability.

Pregnancy. Unwanted pregnancy was measured at Wave IV with the question "*thinking back to the time just before this [first] pregnancy, did you want to have a child then?"* to which respondents could respond yes or no. Wanting the first pregnancy was coded as ever or never.

Adult criminality. Criminal behavior as an adult was assessed with the Wave IV item "How many times have you been arrested since your 18th birthday?"

Mental health problems. Mental health outcomes were assessed with scores on the CESD depression scale and the anxious personality scale, which were administered as part of the Wave IV interview.

Depression. The CESD depression scale was comprised of 5 items measured at Wave IV, which were rated on a scale from 0 (never or rarely) to 3 (most of the time or all of the time). An example of these items is "*How often was the following true during*

the past seven days? You were bothered by things that usually don't bother you." Higher scores on the CESD depression scale denote higher levels of depression.

Anxiety. The anxious personality scale was comprised of 4 items measured at Wave IV, which were rated on a scale from 1 through 5. An example of these items is "How much do you agree with each statement about you as you generally are now, not as you wish to be in the future? I don't worry about things that have already happened." Responses are coded such that higher scores represent a more anxious personality.

Substance use/abuse. Substance use outcomes were measured by created variables counting the number of DSM4 alcohol abuse symptoms and the number of DSM4 other drug abuse symptoms, which were assessed as part of the Wave IV interview.

Data Analysis

RQ1, RQ2, and RQ3 were each answered using the 3-step method for latent class predictor variables (herein, the 3-step method), a mixture modeling approach to latent class analysis (LCA) described by Vermunt (2010) and later elaborated on by Asparouhov and Muthen (2014). In general, LCA looks for patterns in the responses of participants which indicate commonly occurring patterns, or latent classes (Collins & Lanza, 2010). LCA posits that the measured variables actually measure latent (i.e. unobserved) constructs that account for the relationships among the variables (Collins &

Lanza, 2010; Rindskopf, 2009). Based on this reasoning, subgroups that exist in a population can be identified by examining the clustering of measured variables.

In the 3-step method, the steps were as follows. First, a traditional LCA was carried out using the indicator variables (i.e., not the distal variables or covariates; Asparouhov & Muthen, 2014; Vermunt, 2010). For the purposes of this study, step one was completed with female and male subpopulations of the participants to answer research questions 1 and 2. In traditional LCA, the best model is one that is both statistically accurate and interpretable. Therefore, LCA models are selected based on both statistical and theoretical benchmarks.

Theoretically, the best model exhibits both homogeneity and latent class separation (Collins & Lanza, 2010). Homogeneity is observed when within a latent class individuals are very likely to have the same response pattern (for perfect homogeneity within a latent class all item response probabilities are 1 or 0). Latent class separation is observed when variables load very highly on one class and have low probabilities in the other classes (Collins & Lanza, 2010). These benchmarks are assessed by the entropy measure. Entropy measures range from 0 to 1, with values closer to one indicating better model fit (Celeux & Soromenho, 1996). Entropy scores of 0.8 or higher are considered acceptable (Celeux & Soromenho, 1996).

Statistically, model fit is evaluated based on the bootstrap likelihood ratio test (BLRT) described by McLachlan and Peel (2000) or the Vuong-Lo-Mendell-Rubin likelihood ratio test. Findings from Nylund, Asparouhov, and Muthen (2007) indicate

that the BLRT was a more accurate and consistent indicator of the number of classes in LCA and mixture models than information criterion (for example, AIC or BIC) and other likelihood-based tests of the number of classes in a model. The BLRT and the Vuong-Lo-Mendell-Rubin likelihood ratio test compare the indicated model with a model that has k-1 classes. Interpretation of these measures are based on their p-value. Lower p values indicate that the model with k-1 classes is rejected and the specified model with k classes is chosen. (Muthen & Muthen, 2010; UCLA Statistical Consulting Group, 2017).

Because of the complex survey design used in this study, the BLRT option is not available in mPlus. Therefore, the Vuong-Lo-Mendell-Rubin likelihood ratio test is used to evaluate statistical model fit in the current study. The Vuong-Lo-Mendell-Rubin likelihood ratio test is completed using the TECH11 option in mPlus.

Once the optimal model was identified, interpretation of the model began. Interpretation and labeling of classes was done qualitatively. The method described by Collins and Lanza (2010) was used in the present study to interpret categorical variables, and the method described by Templin (2006) was used to interpret continuous variables. In both cases, the researcher examined each variable's probability (categorical) or mean (continues) in each class. Classes were identified and named based on their outstanding features (i.e., especially high or low probability responses, especially high or low mean responses). Male and female models were run separately, and qualitative differences in the classes identified in the male and female samples were examined in terms of 1) the

number of classes 2) the proportion of respondents in classes, and 3) highest probability classes.

In the second step of the 3-step method, a new variable was created which described the class each participant was assigned to (Asparouhov & Muthen, 2014). Participants were assigned to the class where they have the highest probability of belonging based on their response pattern to the items used to create the classes. Note that mPlus completes this step automatically.

In the third step, which was used to answer research question 3 in the present study, the latent class identifier variable created in step 2 was used in a logistic regression predicting the distal dependent variables (Asparouhov & Muthen, 2014). Figure 4 below depicts the process of the three steps method as applied to the present study.

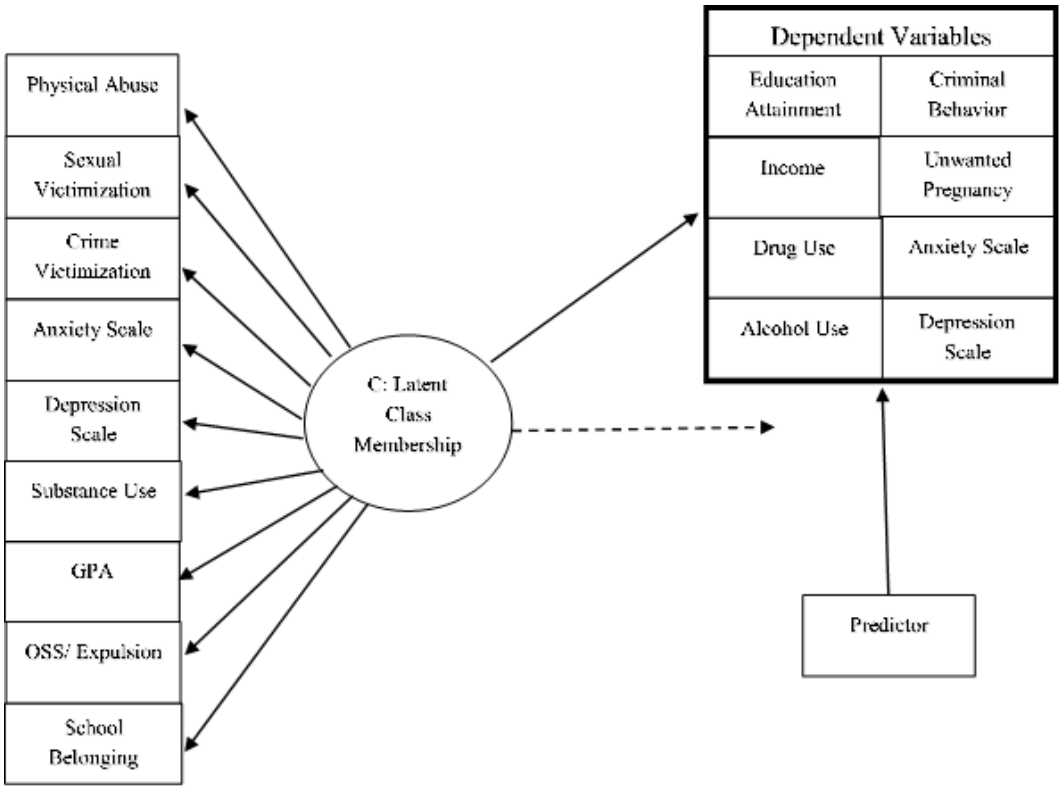

Figure 4. Summary of the 3-step model

CHAPTER IV

RESULTS

Descriptive Statistics

After removing participants for whom Wave IV weights were unavailable, and those participants who reported that they had not engaged in one of the serious delinquent acts described previously, a total of 4,370 participants were included in the study. Descriptive information for the sample is provided in Appendix D. These participants were 45.2% female. They were a racially diverse sample: 55.23% of respondents reported White as their race/ethnicity, 20.92% reported being Black/African American, 16.64% reported being Hispanic/Latino, and 7.21% reported being of another race/ethnicity. The respondents were on average 14.6 (SD 1.52) years of age at Wave I. Approximately 36% of respondents were considered to be low-SES based on their parents' education.

Wave I Variables

In terms of their trauma histories and mental health, 21.44% of included respondents reported that they were survivors of physical abuse in childhood, and 4.68% reported being survivors of childhood sexual abuse. Forced sex was reported at Wave I by 29.13% of included girls who were asked (those who reported being sexually active). Violent crime victimization was reported by 31.75% of included respondents at Wave I, and on average the sample experienced 0.48 violent crime categories (SD=0.83). The

mean depression score (scale scores ranging from 0-27) in the sample at Wave I was 9.08 (SD=3.27) and the mean anxiety score (scale scores ranging from 0-18) at Wave I was 3.81 (SD=2.54). 71.34% of respondents were counted as being substance users. The included respondents reported having used 1.23 substances on average (SD= 1.05).

In terms of their educational status at Wave I, the included respondent's average GPA was 2.41 (SD=0.84). 37.09% of respondents reported experiencing some form of school exclusion (either suspension or expulsion) during the given school year. Finally, the participants reported a mean school belongingness scale score (ranging from 2-10) of 7.29 (SD=1.93).

Wave IV Variables

As only the future (Wave IV) outcomes of female participants are of interest in RQ3, Wave IV descriptive statistics are reported for the female subsample only. 8.66% of the women reported their highest level of education was below a high school diploma. 14.34% indicated having attained a high school diploma or equivalent degree. 47.03% indicated beginning or completing a vocational education or attending some college. 29.95% reported completing a bachelor's degree or higher. 46.1% of women reported their household income was below $50,000 per year (considered the median for the year of 2008, when data was collected.) Of those women who reported that they had ever been pregnant, 51.77% reported that their first pregnancy was unwanted.

24.17% of the women reported having been arrested. The mean anxiety scale score (on a scale from 4-20) was 13.39 (SD=0.09). The mean depression scale score (on

a scale from 0-15) was 3.19 (SD= 0.08). 22.86% of women reported at least one symptom of alcohol abuse at Wave IV. 6.99% of women reported at least one symptom of drug abuse at Wave IV. Descriptive information is presented in Appendix D.

Research Question 1: LCA of Girls who Engaged in Delinquency

To answer RQ1, a latent class analysis of the female subpopulation of the sample was conducted. Variables included in the model assessed participant's experiences with interpersonal violence, violent crime, psychological distress, and experiences in school. A complete list of the variables included in the model, as well as how they were combined into scales, is included in Appendix B.

Table 1 below displays model fit results for 1 through 6 class solutions. The BIC, AIC, and Entropy values are displayed. The Vuong-Lo-Mendell-Rubin likelihood ratio test p-values did not agree with the results of the BIC and AIC tests, and so are dropped from consideration. The optimal model contained 4 classes. The 4 class model was chosen based on the last significant drop in BIC and AIC occurring between the 3 and 4 class solutions, and a high entropy value for the 4 class solution. The probability of participants being assigned to each class is displayed in Table 2.

Results for the LCA are displayed in Table 3 below. Proportions of girls who indicated the experience in each column (class) or the mean score of girls in each column (class) indicated the characterization of the classes. For example, girls in class 2

experienced 1 violent crime category on average, and had a probability of 0.292 of experiencing physical abuse.

Table 1
Model fit statistics for RQ1

Number of Classes	BIC	AIC	Entropy
1	47635.103	47545.706	--
2	46267.624	46116.766	0.908
3	43268.096	43055.779	0.993
4	42741.983	42468.205	0.909
5	42661.874	42326.636	0.877
6	42575.564	42178.864	0.898

Table 2
Average Latent Class Probabilities for Class Assignment, RQ1

	1	2	3	4
1	0.951	0.002	0.047	0.001
2	0.000	0.999	0.000	0.000
3	0.135	0.001	0.862	0.002
4	0.000	0.000	0.000	1.000

As is shown in Table 4, girls in the Low Victimization class reported the lowest rates of interpersonal and sexual violence. They also reported the lowest mean scores of psychological distress and substance abuse. Consistent with theory, the Low

Victimization class demonstrated the strongest school performance, achieving the highest mean GPA, having the lowest proportion of school exclusion, and reporting the highest levels of school belongingness.

Table 3
Results of LCA with female subpopulation

	1	**2**	**3**	**4**
	Low Vic.	**Moderate Vic.**	**High Vic., Psych Distress**	**High Vic., Violent**
Class counts (percentages)	**1320 (67%)**	**280 (14%)**	**240 (12%)**	**134 (6%)**
Crime Victimization	0.000	1.000	0.000	2.224
Depression	8.648	10.300	13.389	11.176
Anxiety	3.513	4.562	6.712	4.926
Substance Abuse	1.011	1.522	1.982	1.943
GPA	2.745	2.210	2.038	2.176
School Belongingness Scale	7.650	6.750	5.761	6.403
Excluded from School*	0.171	0.422	0.576	0.576
Physical Abuse*	0.181	0.292	0.365	0.385
Sexual Abuse*	0.070	0.086	0.149	0.110
Forced Sex*	0.153	0.256	0.367	0.376

Note: variables marked with * are binary, and proportions of respondents indicating they had the experience are recorded. For all other variables, class mean scores are reported.

Girls in the Moderate Victimization class experienced on average 1 violent crime victimization category, and had higher rates of physical abuse than class 1. While their rates of experiencing child abuse and forced sex were higher than the Low Victimization class one, they were significantly lower than the rates of girls in the high victimization classes. Girls in the Moderate Victimization class had scores on depression, anxiety, and substance use scales which were higher than those of girls in the Low Victimization Group, but lower than those of the high victimization classes. Their success in school additionally fell between low and high victimization classes, with high rates of school exclusion, lower than expected mean GPA, and a mean school belongingness score which was below that of the sample mean.

Girls in the High Victimization with psychological distress class did not report violent victimization on average, but did report high levels of child physical abuse and the highest levels of sexual victimization. Girls in the High Victimization-Psychological Distress class reported the highest levels of depression, anxiety, and substance abuse, which makes sense in the context of their level of interpersonal and sexual victimization. Girls in this class had the least success in school of any of the four groups, reporting the lowest mean GPA and ratings of school belongingness, and the highest rate of school exclusion.

Finally, girls in the High Victimization, violent class reported experiencing the highest number of violent victimization categories, over twice as many as the next highest group (Moderate Victimization). Girls in the High Victimization, violent class

reported experiencing high rates of physical and sexual violence by family members or romantic partners as well. Girls in this class reported elevated levels of anxiety and depression, and high rates of substance abuse as well. They fared somewhat poorly academically, with a lower than expected mean GPA and feelings of school belongingness, and the highest rates of school exclusion.

Research Question 2: LCA of Boys who Engaged in Delinquency

To answer RQ2, a latent class analysis of the male subpopulation of the sample was conducted. Variables included in the model assessed participant's experiences with interpersonal violence, violent crime, psychological distress, and experiences in school. Variables included in the model are included in Appendix A. One notable difference between the male model and the female model was the removal of the item assessing participants' experiences with being forced into sex, as this question was only asked of female participants. In addition, qualitative differences in the classes identified in the male and female samples will be examined in terms of 1) the number of classes 2) the proportion of respondents in classes, and 3) highest probability classes.

Table 4 below displays model fit results for 1 through 6 class solutions. Because the Vuong-Lo-Mendell-Rubin likelihood ratio test p-values were not used in determining the number of classes in the female model, they are not included here. BIC, AIC, and entropy values are all displayed. The optimal model contained 5 classes. The last large drop in AIC and BIC occurred between the 4 and 5 class solutions, and the 5 class

solution had acceptable entropy as well. The probability of participants being assigned to each class is displayed in Table 5.

Table 4
Model fit statistics for RQ2

Number of Classes	BIC	AIC	Entropy
1	56242.405	56155.682	--
2	54831.042	54686.504	0.931
3	54366.921	54164.566	0.786
4	54089.734	53829.564	0.789
5	53485.693	53167.707	0.857
6	53808.037	53808.037	0.785

Table 5
Average Latent Class Probabilities for Class Assignment, RQ2

	1	2	3	4	5
1	.870	.003	.005	.001	.121
2	.002	.948	.002	.046	.002
3	.000	.001	.999	.000	.000
4	.000	.176	.007	.817	.000
5	.109	.003	.001	.000	.887

Results for the LCA are displayed in Table 6 below. Proportions of boys who indicated the experience in each column (class) or the mean score of boys in each

column (class) indicated the characterization of the classes. For example, boys in class 2 experienced 1.000 violent crime categories on average, and had a probability of 0.226 of experiencing physical abuse.

Table 6
Results of LCA with male subpopulation

	1	**2**	**3**	**4**	**5**
	Moderate Vic, School Problems	**Moderate Vic.**	**High Vic., Violent**	**High Vic., Psych Distress**	**Low Vic.**
Class counts (percentages)	**541 (23%)**	**439 (18%)**	**407 (17%)**	**96 (4%)**	**913 (38%)**
Crime Victimization	0	1.000	2.361	1.009	0
Depression	8.475	8.176	9.275	11.466	7.930
Anxiety	3.272	3.193	3.811	6.150	3.303
Substance Abuse	1.399	1.168	1.704	1.962	0.825
GPA	1.914	2.222	1.835	1.976	2.770
School Belongingness Scale	6.960	7.699	6.869	4.909	7.930
Excluded from School*	.781	.082	.678	.763	.073
Physical Abuse*	.236	.226	.284	.209	.133
Sexual Abuse*	.042	.012	.037	.108	.001

Note: variables marked with * are binary, and proportions of respondents indicating they had the experience are recorded. For all other variables, class mean scores are reported.

Boys in the Moderate Victimization class were similar to boys in the Moderate Victimization, School Problems group in terms of their victimization and mental health experiences; however boys in the moderate victimization group reported slightly more violent crime victimization and slightly less sexual abuse and substance use. Boys in the Moderate Victimization group reported higher mean GPA and ratings of school belongingness than their peers in the Moderate Victimization, School Problems group, and were less significantly likely to experience school exclusion (8%) as well.

Boys in the High Victimization, Violent class reported experiencing high levels of violent victimization, and moderate levels of physical and sexual abuse. They reported mean levels of depression and anxiety which were slightly higher than their peers in other groups, but reported high levels of substance use. Boys in the High Victimization, Violent group reported the lowest mean GPA of all male classes, and had very high rates of school exclusion as well (67.8%).

Boys in the High Victimization, Psychological Distress class reported elevated rates of Violent Crime Victimization and had the highest likelihood of experiencing sexual abuse of all male classes. They reported the highest mean levels of depression, anxiety, and substance use of all male classes as well. Not surprisingly, boys in the High Victimization, Psychological Distress class reported the lowest mean level of school belongingness, reported a low mean GPA, and had a high likelihood of experiencing school exclusion.

Boys in the Low Victimization class reported the lowest levels of violent victimization, physical abuse, and sexual abuse of all the male classes. They also reported low mean depression, anxiety, and substance use. Boys in the Low Victimization class performed the best educationally of the male groups, with high ratings of school belongingness and mean GPAs, and low levels of school exclusion.

Qualitative Comparison of Male and Female Models

The optimal model in the female subpopulation had 4 classes, while the optimal male model contained 5 classes. Both the male and female models contained a class with low levels of victimization and higher school performance, a class with high victimization and psychological distress, and a class with high victimization and significant violent crime victimization. Important to note is that the high victimization male classes differed from the high victimization female classes in terms of sexual violence, which females were much more likely to experience. Importantly, this finding may be a result of a variable omission problem, or to boys reduced likelihood to report sexual abuse. In the male model, 2 classes with moderate levels of victimization were identified, and they differed primarily based on school success. One male moderate victimization group had significant problems in school, while the other performed more typically educationally. This is compared with one identified moderate victimization group for females.

In both models, the highest probability class was the class characterized by the lowest level of victimization. For each gender, the classes characterized by high

victimization contained the lowest proportions of participants. Interestingly, in the female model the High Victimization, Violent class contained the smallest percentage of participants, while in the male model the High Victimization, Psychological Distress class contained the lowest percentage of participants.

Two key differences were identified between the male and female models. The first was in the rates of sexual and interpersonal violence. Females experienced sexual and physical abuse at a higher rate than their male counterparts across classes. Specifically, all identified classes of female offenders were more likely to report experiencing sexual abuse than even the high-victimization male group, and all but the low-victimization female class (class 1) were more likely to experience physical abuse than even the high-victimization male group. Understandably, they also reported higher rates of psychological distress as a result. For both male and female models, mean substance use scores were higher in classes where more victimization occurred.

The second key difference was in terms of education. While the range of GPA and school belongingnesss scale scores was similar for the female and male models, girls who experienced moderate or high victimization were much less likely to experience school exclusion than their male counterparts. Interestingly, in the female model school success seemed to be related to victimization experience, such that the more victimization a group experienced, the worse they fared educationally. This relationship did not hold as strongly in the male model. For both models, the group with high

victimization and psychological distress fared poorly educationally, and reported the lowest school belongingness ratings.

Research Question 3: LCA with Prediction of Distal Outcomes for Female Model

To answer research question 3, distal outcomes relating to female participants social, emotional, and economic state were included in the model using the AUXILIARY = x(R3STEP); command in mPlus. This command was added to the four class solution of the female model, as this was determined to be the optimal solution in RQ1. As described in Asparouhov and Muthen (2014) this command allows for the determination of the assigned latent classes which are predictive of each distal variable. Results of RQ3 are displayed in Table 7 below.

There were no significant differences between classes of girls who engaged in serious delinquency in their rates of unwanted pregnancy, alcohol abuse, or in ratings of anxious personality measured during their young adulthood. Differences emerged between classes regarding drug use. Girls in the Moderate Victimization group reported statistically significantly more drug abuse symptoms than girls in the High Victimization class (0.144, $p<.05$; OR= 1.15).

There were variations across classes in terms of formal arrests. Girls in the Low Victimization class were less likely than girls in the High Victimization class to report being arrested as an adult (OR= 0.41, $p< .001$).

Table 7

Distal Outcomes of Identified Female Classes (vs. High Victimization class)

	Low Victimization	Moderate Victimization	High Victimization/ Psychological Distress
Economic Instability	**0.61 (0.38, 0.99)**	1.39 (0.82, 2.38)	1.53 (0.79, 2.96)
Depression	**0.89 (0.81, 0.97)**	1.05 (0.96, 1.15)	**1.12 (1.02, 1.23)**
Anxiety	1.01 (0.96, 1.08)	1.03 (0.96, 1.09)	1.02 (0.95, 1.09)
Drug Abuse	1.08 (0.99, 1.17)	**1.15 (1.02, 1.30)**	1.03 (0.93, 1.14)
Alcohol Abuse	0.96 (0.89, 1.03)	1.00 (0.92, 1.09)	0.90 (0.83, 0.99)
Arrest	**0.41 (0.28, 0.60)**	0.79 (0.54, 1.17)	1.23 (0.91, 1.67)
Unwanted Pregnancy	1.14 (0.68, 1.91)	0.90 (0.50, 1.63)	0.99 (0.48, 2.03)
Less than HS	**0.30 (0.15, 0.58)**	0.90 (0.44, 1.84)	1.57 (0.72, 3.41)
Completed HS	**2.21 (1.01, 4.84)**	**4.01 (1.69, 9.49)**	**4.92 (2.24, 10.80)**
Post HS Education	**0.37 (0.22, 0.61)**	**0.36 (0.20, 0.63)**	**0.41 (0.21, 0.77)**
College or beyond	**6.46 (2.96, 14.10)**	**2.44 (1.05, 5.71)**	0.42 (0.05, 3.76)

Note. OR and 95% confidence intervals displayed. OR in bold indicate statistically significant differences

Identified classes of girls differed in the severity of their depression in young adulthood as well. Girls in the Low Victimization class reported significantly lower depression scores in young adulthood than girls in the High Victimization class (-0.120, $p<.01$) and girls in the High Victimization with Psychological Distress class reported significantly more symptoms of depression in young adulthood than girls in the High Victimization class (0.109, $p< .05$).

Economically, girls in the Low Victimization group were less likely to be considered economically unstable in young adulthood than their peers in the High Victimization class (OR= 0.61, $p< .05$). Related to economic success, differences in

educational attainment between classes of girls were also identified. Girls in the Low Victimization class were less likely than girls in the High Victimization class to complete less than a high school-level education (OR= 0.30, p< .001). Girls in the Low Victimization, Moderate Victimization, and High Victimization with Psychological Distress classes were all more likely than girls in the High Victimization class to complete high school or an equivalent degree (OR = 2.21, p<.05; 4.01, p<.01; and 4.92, p< .001) respectively). Girls in the Low Victimization, Moderate Victimization, and High Victimization with Psychological Distress classes were all less likely than girls in the High Victimization class to complete some education after high school (respectively OR = 0.37, p<.001; 0.36, p<.001; and 0.41, p< .01) respectively). Girls in the Low victimization and Moderate Victimization classes were more likely than girls in the High Victimization class to complete a bachelor's degree or higher (respectively OR= 6.46, p< .001; 2.44, p< .039).

CHAPTER V

CONCLUSIONS AND DISCUSSION

Summary of Findings

The present study sought to determine whether subtypes of female and male adolescents who self-report engaging in serious delinquency could be identified based on their experiences of interpersonal violence, psychological distress, and educational experiences. Additionally, after gaining an understanding of subtypes of female offenders, the present study sought to identify life domains (for example, education, mental health) where classes of female offenders might struggle when they reach young adulthood. It was intended that these results would have implications for the treatment of girls who engage in criminal behavior.

The first research question asked what classes of female offenders could be identified using measures relating to victimization, mental health, and education. Four classes of female offenders were identified: one with low victimization, one with moderate victimization, one with high victimization and psychological distress, and one with high victimization and experiences of violent victimization. In all four classes of female offenders, interpersonal violence and psychological distress were present, though to varying degrees. Not surprisingly, classes of girls who experienced violent, interpersonal, and sexual violence (moderate victimization, high victimization-psychological distress, high victimization, violent in the present study) reported the most

psychological distress and performed least well in school. In the current study, classes of girls with higher levels of interpersonal (moderate victimization and high victimization-violent) and sexual (high victimization-violent and high victimization-psychological distress) victimization performed worse educationally than their peers with lower levels of victimization. Girls in the high victimization-violent class, who had experienced high levels of both kinds of victimization, fared worst educationally, and fared poorly in terms of their mental health as well. This is consistent with research that suggests that young people, especially girls, struggle with their mental health (Rossiter et al., 2015) and educational achievement (Boden, Horwood, & Fergusson, 2007) when they experience trauma.

The second research question mirrored RQ1, asking what classes of male offenders could be identified using measures relating to victimization, mental health, and education. In the male model 5 classes were identified, one with low levels of victimization, one with moderate levels of victimization, one with moderate levels of victimization plus school problems, one with high victimization- violent and one with high victimization- psychological distress. As expected, boys in the moderate and high victimization groups fared worse in terms of their mental health and educational success, reporting higher scores on measures of depression, anxiety, and substance use, as well as lower achievement and school belongingness, and higher likelihood of school exclusion.

In addition to identifying a model for male offenders, the second research question sought to identify qualitative differences between the male and female models.

The most striking difference was the prevalence of sexual and interpersonal victimization among the female classes. This is consistent with theory, which would suggest that girls become involved with criminal behavior to a large extent as a result of sexual and family trauma (Belknap, 2006; Belknap & Holsinger, 2006; Chesney-Lind & Sheldon, 2003; DeHart et al., 2014), whereas boys are more likely to engage in delinquency as a result of other causes.

Another key area for examination between the male and female models was in academic success. Regardless of gender, classes where participants reported higher levels of victimization demonstrated lower GPAs, lower ratings of school belongingness, and higher likelihood of school exclusion. This makes sense in light of findings that youth who engage in delinquency have lower academic performance and more behavioral difficulty in school than their non-offending peers (Baglivio, Greenwald, & Russell, 2015; Hartman, Turner, Daigle, Exum & Cullen, 2009). Additionally, this finding is consistent with prior research that suggests that students who experience higher levels of trauma and victimization are more likely to struggle in school than their non-exposed peers (Boden et al., 2007).

Classes of male and female offenders were fairly similar regarding their mean GPA and feelings of school belongingness (with girls generally being slightly higher when compared with their male peers of similar victimization histories.) However, boys with moderate or high levels of victimization experienced school exclusion at a much higher rate than their female peers. This finding differed from what would be expected

based on prior research. Previous studies suggest that girls who engage in delinquency tend to struggle more academically, demonstrate more serious school behavior problems, and are more likely to drop out than their male peers (Belknap, 2006; Timmons-Mitchell et al., 1997). This difference may be explained by differences in study populations. Each of these previously mentioned studies used samples of girls who were incarcerated, while the present study includes any girl who self-reported engaging in at least 1 serious delinquent act. It may be that girls who are less seriously delinquent tend to do better educationally and that this is protective for them, and that girls who are most seriously delinquent (i.e., those who are incarcerated) fare worse than male peers.

The final key difference between the male and female models was that identified classes of boys reported less psychological distress than classes of girls with similar levels of victimization. This may be a result of girls more commonly manifesting psychological distress as anxiety and depression (Sevecke et al., 2009; Wasserman et al., 2010). It is possible that a measure of externalizing psychopathology (for example, ADHD, aggressive behaviors) might have been more elevated among classes of boys.

The third research question sought to understand how identified classes of girls fared in the future, during their young adulthood. Classes did not differ statistically in their likelihood of alcohol abuse, anxiety symptoms, or rates of unwanted pregnancy. Differences between female classes in economic instability, educational attainment, drug use, depression, and adult arrests emerged. Girls in the Low Victimization group were less likely to be considered economically unstable in young adulthood than their peers in

the High Victimization class Girls in the Low Victimization class were less likely than girls in the High Victimization class to report being arrested as an adult. Girls in the Low Victimization class reported less depression in young adulthood than girls in the High Victimization class, and girls in the High Victimization with Psychological Distress class reported more depression than girls in the High Victimization class. Educationally, girls with lower levels of victimization tended to have higher educational attainment.

Implications of Findings

The results of the present study have numerous implications for those who work with youth who experience significant victimization and youth who engage in criminal behavior. First, the findings of this study support previous research, which suggests that girls who criminally offend have differing needs, specifically relating to the experience of sexual violence, than boys who offend. Prevention and intervention programs targeted at these populations should be adapted to take both gender and the experience of trauma into account. Failing to do so results in the unfair treatment of girls by the juvenile justice system, and the further "criminaliz[ation of] girls' efforts to escape from abuse and other conditions of exploitation, maltreatment, and neglect" (p. 72, Chesney-Lind & Merlo, 2015).

Although all classes, regardless of gender, experienced levels of abuse and victimization that were too high for what should be acceptable in society, for girls, the rates of sexual abuse and sexual assault were especially high. Girls who experience

sexual and violent trauma in adolescence struggle in a wide variety of life domains as adults. To some extent, the domains in which they struggle are predicted by the difficulties they had as adolescents. This indicates that understanding a girl's needs when she is identified as at-risk for criminal offending could prevent her from having similar struggles as she enters adulthood. It is important to not only work to prevent further criminal behavior, but to intervene in the psychological and social phenomena that result in offending.

This study additionally speaks to the importance of school performance, and how students' achievement and behavior in school is related to their histories. In classes where school performance was strong, levels of psychological distress and interpersonal violence tended to be lower. Importantly, girls tended to display higher levels of school success, even when they experienced significant victimization, compared to boys.

By extension of both of these sets of implications, schools and social service systems have an important role to play in preventing the onset of criminal behavior in girls. Treatment of trauma and reduction of abusive family dynamics, as well as programs that increase connection to school might all be helpful.

Limitations and Directions for Future Research

While the present study made a significant contribution to understanding the symptoms and needs of girls who engage in criminal behavior over the course of their adolescence and young adulthood, it is not without limitations. Those limitations, and

how future research could resolve them, are discussed below. I first discuss statistical limitations of the study, and then theoretical limitations.

Statistically, the present study could benefit from a more robust initial measure of juvenile offending. In the present study, participants who responded that they had engaged in one or more of a list of serious delinquent activities was included in this study. Although this allows us to better understand young people who commit crime at lower levels, a stronger measure, such as having been involved with the juvenile justice system or having been arrested would likely provide a more accurate representation of the juvenile justice population.

Second, the present study used a fairly weak measure of participant's experiences of violence victimization, coding each type of experience as "ever or never" having occurred in a participant's life. While this did allow for a broad investigation of victimization experiences, a more nuanced measure of these domains is called for. Future research would benefit greatly from a measure(s) of victimization which accounts for the frequency, duration, and severity of victimization, as this would impact treatment considerations. Related to the measurement of violence victimization, male respondents to the study were not asked about their experience of being a victim of forced sex. This may skew results which suggested that girls experienced more sexual violence than their male peers.

Theoretically, three main limitations are identified. First, as the experience of trauma is theoretically related to violent and sexual victimization as well as to criminal

offending in female populations, a measure of trauma symptoms would be beneficial for future researchers to include in their studies. Although the present study includes measures of participants' depression and anxiety symptoms, including trauma symptoms in the analyses, were they available, might have explained more of girls' and boys' criminal offending behavior.

The second theoretical limitation is that the present study did not include a measure of female participant's experience of violence within romantic relationships. Girls' association with criminal or violent partners is related to their own offending behavior, and such experiences would increase the amount of victimization and potential trauma they experience as well (Cauffman et al., 2008). Future research should include this key component in investigations related to female offending, and seek to explore how violent relationships in adolescence affect criminal behavior in adolescence as well as distal outcomes (both criminal and other) in girls' young adulthoods.

Finally, from the results presented here we are unable to determine a causal relationship between school performance and interpersonal violence/ psychological distress in adolescence. It is possible that either 1) doing well and feeling supported in school is protective for students who commit serious delinquency or that 2) students' potentially traumatic experiences and psychological distress reduce their ability to perform well in and build strong attachment to school. Future research, and the future design of preventative interventions, would benefit from studies which directly test the directionality of these findings.

Despite these limitations, subtypes of girls who offend have been identified. Additionally, a better understanding of how victimization experience, psychological distress, and education affect offending girls' future success has been obtained. These results can inform researchers, policy makers, and those who work "on the ground" with girls who engage in delinquent behavior to more effectively identify their needs and better support their growth toward future success.

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APPENDIX A

Serious Delinquency Scale	
Past 12 months property damage	**H1DS2**
Past 12 months hurt someone badly enough to need bandages or care from a doctor or nurse?	**H1DS6**
Past 12 months theft (more than $50)	**H1DS9**
How often did you go into a house or building to steal something	**H1DS10**
Use/threaten to use a weapon to get something from someone	**H1DS11**
Sell drugs	**H1DS12**
Past 12 months theft (less than $50)	**H1DS13**
Past 12 months, take part in a fight where a group of your friends was against another group?	**H1DS14**
Past 12 months you pulled a knife or gun on someone.	**H1FV7**
Past 12 months you shot or stabbed someone.	**H1FV8**

APPENDIX B

Variables included in analyses for RQ 1 and 2	
Created Variable or Component Variables	Variable Code
Abuse: How often parents slapped/hit/kicked you	H4MA3
Sexual Victimization-- responding yes to either item = sexual victimization	
Parents/caregivers sexual abuse	*H4MA5*
Experienced forced sexual intercourse (asked with females only)	*H1CO10*
Crime Victimization Scale	
Someone pulled knife or gun on you	*H1FV2*
Someone shot you	*H1FV3*
Someone cut/stabbed you	*H1FV4*
You were jumped	*H1FV6*
Mental Health	
Depression scale	
I was bothered by things that usually don't bother me	*H1FS1*
I felt that I could not shake off the blues even with the help from my family friends.	*H1FS3*
I had trouble keeping my mind on what I was doing.	*H1FS5*
I felt depressed	*H1FS6*
I felt that everything I did was an effort. (It was hard to get started doing things)	*H1FS18*
You felt that you were too tired to do things	*H1FS7*
I was happy(reverse scored)	*H1FS11*
I enjoyed life (reverse scored)	*H1FS15*
I felt sad	*H1FS16*
Anxiety Scale	
Feeling hot all over for no reason	*H1GH3*
Cold sweats	*H1GH5*
Chest pains	*H1GH14*
Fearfulness	*H1GH22*
A stomach ache or upset stomach	*H1GH4*
Trouble relaxing	*H1GH19*
Number of Substances Used Scale	

Have you had a drink of beer, wine, or liquor—not just a sip or a taste of someone else's drink—more than 2 or 3 times in your life?	H1TO12
How old were you when you tried marijuana for the first time? If you never tried marijuana, enter "0."	H1TO30
How old were you when you tried any kind of cocaine—including powder, freebase, or crack cocaine—for the first time? If you never tried cocaine, enter "0."	H1TO34
How old were you when you first tried any other type of illegal drug, such as LSD, PCP, ecstasy, mushrooms, speed, ice, heroin, or pills, without a doctor's prescription? If you never tried any other type of illegal drug, enter "0."	H1TO40
School	
Experienced exclusionary discipline ever - combination of OSS and expelled	H1ED7, H1ED9
Calculated GPA- cumulative GPA across all years	GPA
School Belongingness Scale	
You feel like you are a part of this school	*H1ED20*
You are happy to be at your school	*H1ED22*

APPENDIX C

Variables used to assess RQ3	
Created Variable or Component Variables	Variable Code
Education	
Highest level of education to date	H4ED2- recoded
Economics	
Midpoint household income	C4VAR040- recoded as Economic Instability
Pregnancy (1= wanted pregnancy)	
Thinking back to the time just before this [the first] pregnancy, did you want to have a child then?	H4PG8- recoded h4pg81
Adult Crime	
How many times have you been arrested since your 18th birthday	C4VAR013
Substance Use/Abuse	
Number of DSM4 alcohol abuse symptoms	C4VAR019
Number of DSM4 other drug abuse symptoms	C4VAR029
Mental Health	
CESD Depression Scale	C4VAR002
Anxious Personality Scale	C4VAR009

APPENDIX D

Variable	N (%)	Mean (SD)
Wave I		
Gender: Male	2,397 (54.85%)	
Gender: Female	1,973 (45.15%)	
Race/Ethnicity: White	2,413 (55.23%)	
Race/Ethnicity: Black/ African American	914 (20.92%)	
Race/Ethnicity: Hispanic/Latino	727 (16.64)	
Race/Ethnicity: Other race	315 (7.21)	
Age		14.62 (1.52)
SES: Parents less than HS	457 (11.76%)	
SES: Parents HS or GED	957 (24.63%)	
SES:Parents post-HS education	1,193 (30.71%)	
SES:Parent Bachelor's or higher	1,278 (32.90%)	
Child Physical Abuse	927 (21.44%)	
Child Sexual Abuse	203 (4.68%)	
Forced Sex (asked of girls who reported ever having sex only)	180 (22.5%)	
Crime Victimization Scale	1,373 (31.75%)	0.48 (0.83)
Depression		9.07 (3.27)
Anxiety		3.80 (2.53)
Substance Use		1.23 (1.05)
GPA		2.41 (0.84)

Excluded from School	1,611 (37.09%)	
School Belongingness Scale		7.29 (1.93)
Wave IV- female respondents only		
Education: Less than HS	171 (8.66%)	
Education: HS or GED	283 (14.34%)	
Education: Post-HS education	928 (47.03%)	
Education: Bachelor's or higher	591 (29.95%)	
Below Median Household Income	911 (46.17%)	
Unwanted First Pregnancy	641 (48.23%)	
Arrested	477 (24.17%)	
Depression		3.19 (0.08)
Anxiety		13.39 (0.09)
1 or More Alcohol Abuse Symptoms	451 (22.86%)	
1 or More Drug Abuse Symptoms	138 (6.99%)	