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A LONG-TERM FOLLOW-UP OF CROSSOVER YOUTH: YOUNG ADULT OUTCOMES
FOR MALTREATED YOUTH IN THE JUVENILE JUSTICE SYSTEM

by

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A dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, the City University of New York

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Abstract

A LONG-TERM FOLLOW-UP OF CROSSOVER YOUTH: YOUNG ADULT OUTCOMES
FOR MALTREATED YOUTH IN THE JUVENILE JUSTICE SYSTEM

By

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Crossover youth, those with histories of childhood maltreatment and delinquency, may be at high risk for negative outcomes compared to other youth. However, very little is known about the long-term outcomes for this population. This dissertation compared four groups: youth with histories of child maltreatment and juvenile arrest ($n = 180$), youth with a history of maltreatment only ($n = 428$), youth with a history of juvenile arrest only ($n = 91$), and youth with no history of maltreatment or juvenile arrest ($n = 496$), on a range of outcomes, including mental health, education, employment, and criminal behavior. Data from a prospective cohort design study was used in which children with documented histories of physical and sexual abuse and neglect between the ages of 0 and 11, as well as matched controls, were subsequently interviewed at a mean age of 29 ($N=1196$). Analyses compared the four groups and examined potential differences by gender and race/ethnicity. Results indicated that crossover youth were at a significant disadvantage in likelihood for educational attainment, employment, and adult arrest when compared to other groups of youth, but were not necessarily at higher risk for lifetime psychiatric disorders. Overall, the impact of having both adversities was most salient for males and Black and Hispanic youth. Unexpectedly, crossover youth and arrested youth also had similar characteristics across many long-term outcomes. Furthermore, the similarities between crossover and arrested youth after accounting for self-reported delinquency, particularly when

combined with the differences found between crossover and maltreated youth on psychosocial outcomes, strongly suggest that the juvenile justice system itself is associated with negative outcomes for crossover youth. This study yields information necessary for designing specialized treatment programs and interventions to improve and enhance the well-being of crossover youth.

Keywords: Juvenile delinquency, child maltreatment, crossover youth, adult outcomes.

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A Long-Term Follow-Up of Crossover Youth: Young Adult Outcomes for
Maltreated Youth in the Juvenile Justice System

Childhood abuse and neglect have been associated with a variety of adverse outcomes, including an increased risk for juvenile delinquency (English, Widom, & Brandford, 2002; Smith & Thornberry, 1995; Stouthamer-Loeber, Loeber, Homish, & Wei, 2001; Widom, 1989b; Maxfield & Widom, 1996). In turn, juvenile delinquency, and contact with the juvenile justice system in particular, has also been associated with negative outcomes (Benda, Corwyn, & Toombs, 2001; Bernburg & Krohn, 2003; Carroll et al., 2006; Corneau & Lanctot, 2004; Gatti, Tremblay, & Vitaro, 2009; Lanctot, Cernkovich, & Giordano, 2007; Moffitt, Caspi, Harrington, & Milne, 2002; Odgers et al., 2008). For example, in retrospective studies of young adults with prior delinquency adjudications, high rates of prior suicide attempts, substance abuse, and symptoms of substance dependence have been found (Corneau & Lanctot, 2004; Ramchand, Morral, & Becker, 2009). Additionally, in a prospective study, an official arrest or police contact between the ages of 13.5 and 16.5 significantly decreased the likelihood of graduating from high school, and increased the risk for future unemployment and involvement in serious crime in adulthood (Bernburg & Krohn, 2003).

Given the consequences of child maltreatment and delinquency independently, it seems likely that there would be a “double jeopardy” effect for youth who experience both of these adversities (Morris & Freundlich, 2004). These youth are also known in the literature as *crossover youth* (Herz, Ryan, & Bilchik, 2010), a term that refers to youth in the juvenile justice system with a history of child maltreatment, youth who are actively and concurrently involved with the juvenile justice and child welfare systems (*dually involved youth*), and youth who have

been adjudicated by both systems (*dually adjudicated youth*). For the purpose of this paper, the overarching term *crossover youth* will be used interchangeably to refer to these three groups.

Despite the abundance of literature on the consequences of maltreatment and delinquency separately, very little is known about the long-term functioning of crossover youth (Herz et al., 2010). The few studies that have examined this population have found that crossover youth are disproportionately African American, tend to experience academic difficulties, have multiple placements in foster care, and have high rates of mental health disorders (Halemba, Siegel, Lord, & Zawacki, 2004; Herz & Ryan, 2008b). There is also evidence to suggest that crossover youth receive harsher sentences in juvenile delinquency cases as compared to youth with no maltreatment history (Conger & Ross, 2001; Ryan, Herz, Hernandez, & Marshall, 2007). Additionally, in one of the only studies to examine young adult outcomes beyond recidivism for individuals leaving the child welfare and/or juvenile justice systems, Culhane et al. (2011) found that those with dual-system involvement had higher rates of poverty, mental health service use, and adult incarceration than individuals who had contact with only one system.

The current study fills a significant gap in the literature by examining the impact of juvenile justice system contact on long-term outcomes for crossover youth beyond re-arrest. In examining these outcomes, the current study findings can be used to improve the health and well-being of a potentially vulnerable population of youth. This dissertation will begin with a literature review that discusses the consequences of child maltreatment and the consequences of juvenile justice system involvement, with a particular emphasis on mental health, education and employment outcomes. The literature review will then examine what is currently known about youth in the juvenile justice system with a history of child maltreatment (i.e., crossover youth), including prevalence rates, demographics, and long-term outcomes. The review of the literature

will be followed by the rationale and methods for the current study, as well as the results and discussion of the current study findings.

Literature Review

Although the overall rate of juvenile arrests has decreased over the last two decades (Butts & Evans, 2014; Sickmund & Puzzanchera, 2014), a significant number of youth are still being arrested and processed through the juvenile justice system. In 2011 alone, 1.5 million youth were arrested in the United States (Puzzanchera, 2013). Of those arrested youth, 75% were referred to a juvenile or adult court for processing, while only 22% were released with no further action. In that same year, the number of youth under juvenile court jurisdiction exceeded 31 million (Hockenberry & Puzzanchera, 2014).

When the juvenile court was initially created in the late 1800's, it was clearly distinct from the adult court system, and was focused on the treatment and rehabilitation of troubled youth (Fagan, 2008; Steinberg, 2009). Since that time, the lines of distinction between the juvenile and adult court systems have blurred considerably as the juvenile court has shifted toward a greater focus on punishment and community protection (Myers, 2003; Steinberg, 2009). However, there is evidence to suggest that rehabilitation is re-emerging as a central theme in delinquency cases, and that more balanced sentencing approaches are now being considered (Scott & Steinberg, 2008; Task Force on Transforming Juvenile Justice, 2009). For example, in recent years, several states have taken initiatives to expand the use of alternatives-to-incarceration for adjudicated youth (Butts & Evans, 2011), and the decisions in several recent US Supreme Court cases also suggest a shift away from a strictly punitive focus in juvenile justice (See *Graham v. Florida*, 2009; *Miller v. Alabama*, 2012; *Roper v. Simmons*, 2005).

Changes in public opinion, coupled with the growing recognition that developmental science should play a more crucial role in responses to juvenile crime, has also led some experts to call for a re-examination of the current juvenile justice system. Indeed, some have even advocated for the complete abolishment of the juvenile court system (Ainsworth, 1991), whereas others have suggested alternative models of juvenile justice (Scott & Steinberg, 2008; Slobogin & Fondacaro, 2009). For example, in their proposed developmental model of juvenile justice, Scott and Steinberg (2008) suggest that juvenile offenders should not be treated as children or as adults, but should be considered an entirely separate category, with immaturity as a mitigating factor in dispositions. Alternatively, Slobogin and Fondacaro (2009) argue for an “individual prevention” model of juvenile justice. This model supports the retention of a separate juvenile justice system, but advocates for a primary focus on the reduction of recidivism through the use of risk assessment-informed treatment.

In the current juvenile justice system, dispositional decisions in juvenile delinquency cases are made with the dual purpose of protecting the community and rehabilitating the adjudicated youth (Cauffman, et al., 2007; New York Family Court Act, 2015). However, although the goals of the current system are to protect the community and rehabilitate youth, studies examining the overall impact of the juvenile justice system on youth suggest that at least some sanctions may have the opposite effect (Bernburg, Krohn, & Rivera, 2006; Gatti et al., 2009; Huzinga, Schumann, Ehret, & Elliot, 2004; Klein, 1986; Lanctot et al., 2007).

Effects of the Juvenile Justice System on Youth

Although a cause and effect relationship has not necessarily been established, involvement with the juvenile justice system has been shown to have a variety of detrimental effects on the development of youth, including decreased opportunities for educational

attainment. For example, studies of formerly incarcerated youth have found low rates of school re-enrollment and attendance after re-entry into the community (Bullis, Yovanoff, Mueller, & Havel, 2002; Keeley, 2006), and juvenile justice involved youth are less likely to graduate high school or obtain a General Equivalency Diploma (GED) as compared to youth outside the juvenile justice system (Bernburg & Krohn, 2003; Cavendish, 2013; Haberman & Quinn, 1986). Although much of the research in this area has examined populations of incarcerated or formerly incarcerated youth (Krezmien, Mulcahy, & Leone, 2008), those studies that have examined less severe forms of contact with the juvenile justice system, such as arrest, have found similar negative effects (Bernburg & Krohn, 2003; Bushway, 1998).

Involvement with the juvenile justice system has also been associated with negative employment outcomes in adulthood (Bernburg & Krohn, 2003; Davies & Tanner, 2003; Lanctot et al., 2007; Tanner, Davies, & O'Grady, 1999). Specifically, incarceration in adolescence has been significantly related to greater job instability and socioeconomic disadvantage in adulthood, even after controlling for self-reported delinquent behavior (Davies & Tanner, 2003; Lanctot et al., 2007). An association between an arrest in adolescence and unemployment in adulthood has also been found (Bernburg & Krohn, 2003), even after accounting for factors such as socioeconomic status, race and ethnicity, and serious delinquency.

Research has consistently demonstrated high rates of mental health disorders among youth in the juvenile justice system (Copeland, Miller-Johnson, Keeler, Angold, & Costello, 2007; Fazel, Doll, & Langstrom, 2008; Goldstein, Olubadewo, Redding, & Lexcen, 2005). For example, in a study of youth in a detention facility, more than two thirds of females and approximately 60% of males met criteria for at least one psychiatric disorder, even after excluding conduct disorder (Teplin, Abram, McClelland, Dulcan, & Mericle, 2002). Moreover,

in retrospective studies of young adults with prior delinquency adjudications, high rates of prior suicide attempts, substance abuse, and symptoms of substance dependence have been found (Corneau & Lanctot, 2004; Ramchand et al., 2009).

Youth in the juvenile justice system also report higher rates of Posttraumatic Stress Disorder (PTSD) as compared to youth in community samples. In one study of 264 youth in a pre-trial detention center, 19% of participants met criteria for either full or partial PTSD (Ford, Hartman, Hawke, & Chapman, 2008). In contrast, a study of similarly aged adolescents in a community sample found prevalence rates of PTSD closer to 5% (Cruise & Ford, 2011; Kilpatrick et al., 2003).

Involvement with the juvenile justice system has the potential to interrupt existing mental health services, and the inadequacy of mental health service provision in many parts of the system may serve to exacerbate pre-existing mental health problems (Abrams, 2005; Krezmien et al., 2008; Redding, Lexcen, & Ryan, 2005; USDOJ, 2012). For example, in its investigation of one juvenile residential facility, the U.S. Department of Justice noted many deficiencies, including unsafe conditions and inadequate mental health service provision (USDOJ, 2012). Although the long-term mental health consequences of juvenile justice involvement are less well known, at least one study has found a relationship between incarceration in adolescence and depressive symptoms in adulthood, and this relationship was particularly salient for females (Lanctot et al., 2007).

Prior research has documented an association between involvement with the juvenile justice system and an increased risk for re-arrest in both adolescence and adulthood (Bernburg et al., 2006; Florsheim, Behling, South, Fowles, & DeWitt, 2004; Gatti et al., 2009; Huzinga et al., 2004; Klein, 1986; Lanctot et al., 2007). For example, in one study, adolescents who had formal

contact with the juvenile court system between the ages of 13.5 and 14 were 5.5 times more likely to report involvement in serious delinquent behavior at age 15 than those who did not have such contact, even after controlling for race/ethnicity, gender, parental income, substance use, and initial involvement in serious delinquent behavior and deviant peer networks (Bernburg et al., 2006). After randomly assigning participants arrested by the police to different sanctions, Klein (1986) found that those participants who were released without any intervention had the lowest rate of re-arrest after 27 months as compared to those participants who were subjected to further intervention by the system. Moreover, in a study examining the impact of juvenile justice system involvement and offending in adulthood, Gatti et al. (2009) found that males who were subjected to any of three available sanctions (i.e., placement, supervisory, or nonsupervisory) were almost seven times more likely to end up in adult criminal court as compared to boys with no history of juvenile justice involvement, even after controlling for variables such as delinquent behavior, family income, and deviant peer involvement.

Taken together, these findings suggest that the current juvenile justice system may have a number of iatrogenic effects on adolescent development. In turn, this places juvenile justice involved youth at a significant disadvantage in the transition from adolescence to young adulthood and increases the risk for negative outcomes. Consequently, the system does not appear to be serving its stated purpose of rehabilitation, and is therefore placing the public at even greater risk.

Effects of Child Maltreatment on Youth

Prospective studies have consistently found that abuse and neglect in childhood increases the risk for arrest and criminal justice involvement in adolescence and adulthood (English et al., 2002; Maxfield & Widom, 1996; Smith & Thornberry, 1995; Stouthamer-Loeber et al., 2001;

Widom, 1989b). For example, in a study involving substantiated cases of child abuse and neglect, those individuals with a history of maltreatment were arrested more frequently than those in a non-maltreated comparison group (Widom, 1989b). Moreover, in a follow-up study involving the same substantiated cases, the researchers found that individuals who were abused or neglected in childhood had a 59% greater chance of being arrested in adolescence, and a 28% greater chance of being arrested in adulthood, as compared to those without a history of child maltreatment (Maxfield & Widom, 1996).

Child abuse and neglect have been associated with higher rates of mental health disorders in adulthood, including Major Depressive Disorder (MDD), Dysthymia, and Generalized Anxiety Disorder (GAD) (Brown, Cohen, Johnson, & Smailes, 1999; Herrenkohl, Hong, Klika, Herrenkohl, & Russo, 2013; Widom, DuMont & Czaja, 2007). Research has also found a link between child maltreatment and an increased risk for PTSD (Kaplow, Dodge, Amaya-Jackson, & Saxe, 2005; Kearney, Wechsler, Kaur, & Lemos-Miller, 2010; Kendall-Tackett, Williams, & Finkelhor, 1993; Widom, 1999). For example, Widom (1999) found that individuals with a court-substantiated case of child abuse or neglect before age 11 were more than 1.75 times more likely than non-maltreated individuals to meet the criteria for lifetime PTSD at age 29. Moreover, in a follow-up study, Koenen and Widom (2009) found sex differences in rates of adult PTSD among the abused and/or neglected sample. Specifically, PTSD was more than twice as likely to develop among maltreated women as compared to maltreated men, with sexual abuse exhibiting the largest differences between men and women in the sample.

Childhood maltreatment has been associated with alcohol and substance use in adulthood (Min, Farkas, Minnes, & Singer, 2007; Widom, Ireland, & Glynn, 1995; Widom, Marmorstein, & White, 2006; White & Widom, 2008; Wilson & Widom, 2009). However, studies have found

that the relationship between childhood maltreatment and adult substance use is significant for women, but not necessarily for men (Widom et al., 1995; Widom et al., 2006). For example, in Widom, Ireland, and Glynn (1995), women with a history of abuse or neglect exhibited significantly more symptoms of alcohol abuse/dependence, and were more likely to have a lifetime diagnosis of alcohol abuse/dependence in adulthood, than non-maltreated women. There were no significant differences between maltreated and non-maltreated men with regard to alcohol related symptoms or diagnoses.

Like juvenile justice involvement, the findings from several studies suggest that child abuse and neglect is related to detrimental outcomes for educational attainment and employment in adulthood (Currie & Widom, 2010; Min et al., 2007; Leiter & Johnsen, 1994, 1997; Perez & Widom, 1999; Zolotor et al., 1999). Among a sample of 285 adult women, Min et al. (2007) found that a self-reported history of childhood emotional abuse or neglect was significantly related to fewer years of completed education. Similarly, Boden, Horwood, and Fergusson (2007) examined the relationship between varying degrees of childhood physical and sexual abuse and self-reported academic outcomes in young adulthood (between ages 16 and 25). The results indicated that increased severity of childhood abuse was related to a decrease in educational achievement in young adulthood. However, the strength of the relationship between abuse and education was greatly influenced by social, individual, and familial factors, suggesting that the link between child maltreatment and long-term educational outcomes is not necessarily direct.

Although the two studies discussed above are limited by an exclusive reliance on retrospective self-reports of abuse or neglect, prospective studies using court-substantiated histories of child maltreatment have reported similar findings. For instance, Perez and Widom

(1999) found that a substantiated history of childhood physical abuse was associated with a decrease in the number of school years completed, as well as lower levels of reading ability and IQ. Moreover, in a study using the same sample, Currie and Widom (2010) found that individuals with a history of abuse or neglect were also less likely to be employed, and reported lower earnings in adulthood, as compared to those with no substantiated history of maltreatment. Maltreated individuals were also less likely to have achieved other financial milestones in adulthood, including owning stock, a bank account, and a home. Gender differences were also found for education and employment outcomes. More specifically, as compared to non-maltreated women, women with a history of abuse or neglect had significantly worse education, employment and economic outcomes on almost every measure except having a skilled job and non-mortgage debt. In contrast, as compared to non-maltreated men, men with a history of abuse or neglect only differed significantly on having a skilled job.

In another prospective study, Allwood and Widom (2013) found that maltreated individuals were less likely to achieve developmental milestones such as graduation from high school, current employment and marriage. In turn, these milestones partially mediated the relationship between child abuse and neglect and adult arrest for the overall sample. Additionally, both employment and high school graduation also fully mediated the link between maltreatment and adult arrest for males, but not females, and high school graduation was particularly important in reducing the risk of adult arrest for Blacks. Notably, although the strength of the relationship was reduced, the relationship between maltreatment and adult arrest remained significant even after juvenile arrest was included in the model.

Maltreated Youth in the Juvenile Justice System

As previously stated, prospective studies have consistently found that abuse and neglect in childhood increases the risk for arrest and criminal justice involvement in adolescence (English et al., 2002; Maxfield & Widom, 1996; Smith & Thornberry, 1995; Stouthamer-Loeber et al., 2001; Widom, 1989b). In further support of this finding, cross-sectional research has found high rates of trauma exposure, including child abuse and neglect, among juvenile justice-involved youth (Abram et al., 2004; Cruise & Ford, 2011; Gover & MacKenzie, 2003; King et al., 2011; Sedlak & McPherson, 2010). For example, in a 2003 survey, 30% of youth in residential facilities reported a history of physical or sexual abuse (Sedlak & McPherson, 2010). In another study of incarcerated juveniles in 20 different states, 75% of youth reported that they had been physically abused, 20% reported a history of neglect, and 54% reported that they had witnessed domestic violence among family members (Gover & MacKenzie, 2003). Additionally, among a sample of detained youth (n=1735), 11% of males and almost half of females had a self-reported or court recorded history of childhood sexual abuse, and more than two thirds of males and three quarters of females had a history of childhood physical abuse (King et al., 2011).

Although prevalence rates appear to vary widely by study and jurisdiction, research also suggests that the number of youth in the juvenile justice system with a history of child maltreatment (i.e., crossover youth) tends to increase with the severity of system involvement (Halemba & Lord, 2005; Halemba, Siegel, Lord, & Zawacki, 2004). For example, in a study of youth in the Arizona juvenile justice system, crossover youth represented 1% of diversion cases and 42% of cases that resulted in a placement away from home (i.e., incarceration) (Halemba et al., 2004).

Despite the prevalence of maltreated youth in the juvenile justice system, as well as the established link between maltreatment and delinquency, very little research has been conducted to determine how juvenile justice system involvement impacts the long-term functioning of crossover youth (Herz et al., 2010; Ryan et al., 2007). However, given the negative adult outcomes that have been associated with both child maltreatment and juvenile justice involvement, crossover youth may be at risk for even more debilitating outcomes in adulthood than youth in the juvenile justice system without a history of maltreatment.

Characteristics of crossover youth. The following section will review what is currently known about crossover youth, including demographic and other characteristics, as well as the limited research on long-term functioning for this population.

Demographics. Although the racial/ethnic makeup of crossover youth varies by study and jurisdiction, several studies have found that minority youth are disproportionately represented in crossover youth populations (Culhane et al., 2011; Herz & Ryan, 2008b; Ryan et al., 2007). For example, in their study of youth who were charged with an offense in the Los Angeles County juvenile court while also in the care of the child welfare system ($n=581$), Herz and Ryan (2008b) found that although African American youth represented 10% of the overall population, 28% of youth referred to probation, and 37% of youth referred to the child welfare system, they represented 63% of youth with both child welfare and juvenile justice system involvement. Ryan et al. (2007) also found that crossover youth who were arrested in Los Angeles were more likely to be African American or Hispanic than youth who were arrested but had no child welfare involvement.

In another study of youth in Los Angeles, Huang, Ryan, and Herz (2012) found that African American youth represented 55% of youth involved in both the child welfare and

juvenile justice systems, 27% of youth involved with only the juvenile justice system, and 40% of youth involved with only the child welfare system. In Arizona, African American youth represented a higher percentage of crossover youth (17%) as compared to delinquency only youth in both probation supervision (8% African American) and placement (8% African American) (Halemba et al., 2004). However, it should be noted that although minority youth were still overrepresented, non-minority youth comprised 50% of the crossover youth population in this study. In contrast, in a study of crossover youth in Maryland, there were no significant race differences between crossover youth and youth with only juvenile justice or child welfare involvement (Young, Bowley, Bilanin, & Ho, 2015).

There is some evidence to suggest that African American youth may be especially impacted by disproportionate minority contact in crossover populations in at least some jurisdictions. For example, in an unpublished study of individuals in LA County, Culhane et al. (2011) compared young adult outcomes for three groups of youth exiting the child welfare or juvenile justice system in 2002 and 2004: a child welfare only group ($n=2388$), a juvenile justice only group ($n=8368$), and a crossover group ($n=268$). Culhane et al. found that 56% of youth in the crossover group were African American and 30% were Latino. However, these findings were the opposite in the juvenile justice only group where almost 60% of youth were Latino and less than 25% were African American. Moreover, in the child welfare only group, 40% of youth were African American and more than 30% of youth were Latino. Even in Missouri, where the racial composition of the juvenile justice system was 75% Caucasian, 21.5% African American, and 3% other, African American youth were still more likely to have a history of child maltreatment than non-African American youth (Dannerbeck & Yan, 2011).

Similar to general juvenile justice populations, males outnumber females in crossover youth populations (Culhane et al., 2011; Halemba et al., 2004). For example, Culhane et al. (2011) found that there were more males than females in both the crossover youth and juvenile justice only groups. However, there is evidence to suggest that females represent a greater proportion of youth in crossover populations as compared to females in juvenile justice-only populations (Herz & Ryan, 2008b; Ryan et al., 2007; Young et al., 2015). For example, Herz and Ryan (2008b) found that although females represented 25% of all arrests in Los Angeles County, they represented 33% of crossover youth in the juvenile justice system. Similarly, 35% of crossover youth in Arizona were female, whereas only 25% of youth on juvenile justice probation supervision were female (Halemba et al., 2004). Culhane et al. (2011) also found that a third of youth in the crossover group were female as compared to 20% of youth in the juvenile justice only group and 60% in the child welfare only group. Similar results were also found in Young et al. (2015). This suggests that the disproportionate representation of females among crossover youth, as compared to juvenile justice only youth, may be driven by an overrepresentation of females in the child welfare system.

Studies have found that crossover youth first enter the juvenile justice system at an earlier age than non-maltreated youth in the system, and this finding appears to be consistent across studies and jurisdictions (Culhane et al., 2011; Dannerbeck & Yan, 2011; Halemba & Siegel, 2011; Halemba et al., 2004; Ryan et al., 2007; Young et al., 2015). On average, youth in King County, Washington with a history of child welfare involvement were more than a year younger at the time of their first delinquency referral as compared to youth with no child welfare history (Halemba & Siegel, 2011). Similarly, in Missouri, a history of involvement with the child

welfare system was significantly related to a younger age of first referral to the juvenile justice system (Dannerbeck & Yan, 2011).

Education and mental health. Crossover youth are more likely to have academic difficulties as compared to other youth in the juvenile justice system. For example, Dannerbeck and Yan (2011) found that crossover youth were more likely to have a learning disorder, be failing academically, and exhibit behavior problems in school as compared to non-maltreated youth in the juvenile justice system (Dannerbeck and Yan, 2011). Herz and Ryan (2008b) also found that although three quarters of crossover youth in their sample were enrolled in school, the majority were doing poorly academically, were not attending on a regular basis, and were exhibiting behavioral problems.

Findings from cross-sectional studies of mental health and substance use among crossover youth suggest that rates for this population may be even higher than among juvenile justice only youth (Dannerbeck & Yan, 2011; Halemba et al., 2004; Herz & Ryan, 2008b; Young et al., 2015). For example, in their study of detained youth, King et al. (2011) found that detained females with a history of moderate physical abuse, sexual abuse, or sexual abuse combined with severe physical abuse were between 2 and 6 times more likely to have an anxiety disorder, including P, as compared with detained youth with no history of child maltreatment. Detained females with a history of child maltreatment were also more likely than non-maltreated females to be diagnosed with an affective disorder, a substance use disorder, a disruptive behavior disorder, and attention deficit hyperactivity disorder (ADHD). There were also significant differences between detained males with a history of maltreatment and non-maltreated males. More specifically, maltreated males were more likely to have an affective disorder, a substance use disorder, a disruptive behavior disorder or ADHD as compared to non-maltreated males, but

there were no significant differences between maltreated and non-maltreated males in likelihood for an anxiety disorder.

In their study of crossover youth in Maryland, Young et al. (2015) also found that crossover youth had significantly higher levels of mental health needs, including a higher number of overall mental health diagnoses, as compared to youth with a delinquency petition but no child welfare involvement. Notably, there were no significant differences between crossover youth and juvenile justice youth on measures of substance use, including diagnoses or self-reported use of substances. In contrast, in a study investigating the impact of collaboration between agencies on the services provided to crossover youth, Chuang and Wells (2010) found that a higher percentage of crossover youth had self-reported substance use issues as compared to youth in only the child welfare or juvenile justice systems, but crossover youth did not have disproportionately higher rates of overall mental health issues. However, it is important to note that the results in Chuang and Wells (2010) were not necessarily statistically significant.

Arrest history. With regard to type of offense and arrest history, almost half of the crossover youth in Los Angeles County juvenile court between April 1 and December 31, 2004 were arrested for a violent offense and 58% had a prior history of arrest (Herz & Ryan, 2008b; Herz et al., 2010). In a separate study comparing youth with and without a history of maltreatment, Ryan et al. (2007) found that crossover youth were more likely to have an arrest for a violent offense, sexual offense, or offense involving a threat, and were less likely to have an arrest for an offense involving drugs or weapons. Additionally, Dannerbeck and Yan (2011) found that crossover youth in Missouri were more likely than juvenile justice involved youth with no child maltreatment history to have a history of perpetrating assault.

Child welfare placements. Of those studies that have examined the characteristics of crossover youth, several have briefly reported on the child welfare experiences of this population. Specifically, Culhane et al. (2011) found that the crossover youth in their study had experienced a greater number of out of home dependency placements than youth in the child welfare only group. Young et al. (2015) also found that crossover youth had a significantly greater number of child welfare placements, and also spent longer time in out-of-home placement, as compared to youth involved in the child welfare system with no juvenile justice involvement. Moreover, Herz and Ryan (2008b) found that almost all of the crossover youth in their study (98%) had at least one prior out of home placement in the child welfare system, and just under half (40%) were living in a group home at the time of their most recent arrest. Approximately 30% of all recent arrests for this population occurred within the context of a child welfare placement, with more than half of those arrests taking place in a group home setting. Additionally, Huang et al. (2012) found that 55% of the 1148 crossover youth in their study had three or more out of home child welfare placements prior to their juvenile arrest, and 66% of the sample were in a child welfare placement at the time of their juvenile arrest. Similarly, in a study of 204 youth with dual involvement in the juvenile justice and child welfare systems in two Arizona counties during 2002, 82% of the sample was residing in a residential treatment center or group home during the study period (Halemba et al., 2004).

Juvenile justice court processing. There is evidence to suggest that crossover youth receive harsher treatment in juvenile delinquency cases as compared to youth with no maltreatment history (Conger & Ross, 2001; Ryan et al., 2007). For example, Halemba and Siegel (2011) found that crossover youth in King County, Washington were more likely to be initially referred for a delinquency case than non-crossover youth. Crossover youth were also

detained with greater frequency and for longer periods of time than non-crossover youth. Moreover, although Ryan et al. (2007) found no differences between crossover youth and non-crossover youth in the rate of juvenile delinquency case dismissal, crossover youth were more likely to receive a placement away from home (group home or correctional facility) as a disposition in a juvenile delinquency case as compared to youth with no child welfare involvement, even after controlling for age, race, gender, and type of offense. African American and Hispanic youth were also more likely to receive an out of home placement, and less likely to receive a case dismissal, as compared to White and Asian youth. Although there was no significant difference between crossover youth and juvenile justice involved youth in the rate of probation dispositions, Young et al. (2015) found that crossover youth in Maryland were significantly more likely to receive a disposition of commitment as compared to youth in the Maryland juvenile justice system with no maltreatment history.

Similar results have been found in regard to detention practices. Specifically, Conger and Ross (2001; 2006) found that youth in foster care in New York City were more likely to receive pre-adjudication detention in delinquency cases as compared to youth who were not in foster care. Possible reasons for this differential rate of detention included a lack of inter-agency communication and the absence of an adult at arraignment (which would automatically lead to detention) (Conger & Ross, 2006). These findings led to the establishment of Administration for Children's Services (ACS) Confirm (formerly Project Confirm) in New York City Family Court.¹ ACS Confirm has demonstrated success in reducing the foster care bias in delinquency cases in New York, particularly for youth charged with low-level crimes.

¹ Through the ACS Confirm program, juvenile justice staff can verify whether an arrested youth is in foster care with the Administration for Children's Services (ACS), and the youth's caseworker can then be notified to appear in delinquency court (Conger & Ross, 2001; 2006). This increases inter-agency communication and reduces the likelihood of a youth being detained based solely on the lack of appearance by an adult. Additionally, in 2010, the

Long-term outcomes for crossover youth.

Recidivism. Only a handful of studies have examined recidivism outcomes for youth in the juvenile justice system with a history of child maltreatment. Overall, the findings from these studies suggest that crossover youth are even more likely to recidivate than juvenile justice only youth. For example, Halemba and Siegel (2011) compared the rates of re-arrest for four groups of juvenile justice involved youth: those with no child welfare involvement ($n = 1462$), those with unspecified child welfare involvement ($n = 1358$), those involved in a child protective services investigation (not necessarily substantiated) ($n = 939$), and those who were the subject of a child protective petition ($n = 716$). The results indicated that within two years after being referred for a juvenile delinquency case, 70% of those youth with a child protective petition were re-arrested as compared to 34% of youth with no prior involvement in the child welfare system. Moreover, among those youth with a child protective petition, the highest rates of re-arrest were found among African American and Native American youth. Females and first time offenders with a child protective petition also had higher rates of re-arrest than females and first time offenders with no involvement in the child welfare system.

In two studies examining crossover youth in Los Angeles County court between April 2004 and December 2004 ($n=581$), 28% of the sample was re-arrested within one year (Herz & Ryan, 2008b), and 64% were re-arrested within four years (Herz et al., 2010). For purposes of these studies, crossover youth included all youth with cases in both dependency and delinquency court. Although the lack of a comparison group precluded an assessment of whether involvement with the child welfare system resulted in a higher likelihood of re-arrest, the findings did indicate that several factors were associated with recidivism for this specific population (Herz et al.,

2010). In particular, older youth, those with substance abuse issues, those who were truant from school, and those with a high need for mental health or substance abuse treatment were more likely to be subsequently arrested.

In another study of youth in Los Angeles County, Huang et al. (2012) examined recidivism outcomes for 1148 crossover youth involved in the child welfare and juvenile justice systems in 2003. Overall, Huang et al. (2012) found that 56% of crossover youth were subsequently re-arrested between 2003 and 2008, as compared to 41% of youth with only involvement in the juvenile justice system in 2003. Although the study did not examine statistically significant differences between these two groups, or compare the likelihood for re-offense between crossover youth and other groups, Huang et al. (2012) did examine whether race/ethnicity, age, gender, child welfare placement history, type of arrest, or juvenile justice disposition history predicted the rate of re-arrest. Using only crossover youth with an initial disposition of dismissal, placement, probation or a deferred judgment ($n = 622$), the results indicated that crossover males were significantly more likely than crossover females to be re-arrested, and crossover youth with an initial disposition of dismissal were significantly less likely to be re-arrested as compared to those with other types of dispositions. In contrast, none of the other factors, including age, race/ethnicity, type of initial offense, and child welfare placement history, significantly predicted subsequent re-arrest for crossover youth.

In a study of youth with a dependency, delinquency, or status petition in juvenile court in four Arizona counties during 2002, youth with simultaneous involvement in dependency and delinquency court were twice as likely to be re-arrested as compared to youth with no child welfare involvement (Halemba et al., 2004). Interestingly, although males were more likely to recidivate than females in the juvenile justice only group, in the crossover group, the rate of

recidivism for females in court on a first offense was slightly higher than the recidivism rate for comparable males. Moreover, of those crossover youth who were placed on probation, only 30% successfully completed the terms of this sanction. The remainder were either committed to a juvenile correctional facility, aged out of the delinquency system at age 18, were referred to adult court, or were re-arrested on additional charges. Comparison rates for probation completion were not reported for youth with only involvement in the juvenile justice system.

Outcomes other than recidivism. Thus far, only a few studies have examined long-term outcomes for crossover youth other than recidivism. For example, in addition to examining re-arrest, Huang et al. (2012) also examined subsequent child welfare referrals for crossover youth with dual involvement in the child welfare and juvenile justice systems in 2003. The results indicated that 32% of crossover youth in the study had a referral to the child welfare system within five years after their initial arrest, with males and older youth less likely than females and younger youth to be re-referred to the child welfare system. Race/ethnicity and child welfare placement history were not related to an increased risk for re-referral to the child welfare system. However, type of initial juvenile justice disposition did have a statistically significant impact on risk for re-referral to the child welfare system. For example, crossover youth with an initial disposition other than juvenile justice placement were more likely to be re-referred than crossover youth whose juvenile justice cases were initially dismissed. This suggests that for this sample of crossover youth, continued involvement in the juvenile justice system had a significant impact on subsequent re-referral to the child welfare system.

In their unpublished study, Culhane et al. (2011) compared young adult outcomes for child welfare only, juvenile justice only, and crossover youth. Outcomes included adult incarceration or probation supervision, use of health, substance abuse, or mental health services,

earnings and employment, educational attainment, and public welfare receipt within four to eight years following departure from either the child welfare or juvenile justice systems. For the purposes of this study, crossover youth were those youth who exited the child welfare system between the ages of 16 and 21, and also had involvement with probation supervision at age 16 or later.

Culhane et al. (2011) found differences between the three groups on almost all adulthood outcomes, with the crossover group exhibiting the worst outcomes overall. Specifically, after age 18, the crossover group had more health related inpatient hospital stays and emergency room visits, and also utilized more outpatient health services, as compared to the non-crossover groups. The crossover group was also more likely to receive substance abuse treatment, and was four times more likely to access outpatient mental health treatment, than the child welfare and juvenile justice only groups. Additionally, approximately half of the crossover group experienced extreme poverty in young adulthood, and the crossover group was also 1.65 times more likely than juvenile justice only group to receive welfare in adulthood.

Culhane et al. (2011) provides valuable information on the long-term outcomes for crossover youth. However, there are some important methodological limitations to this study that should be addressed by future research. First, the crossover youth included in this study were those who exited the child welfare system between the ages of 16 and 21. This poses a challenge when attempting to disentangle the long-term effects of the child welfare versus juvenile justice system, because this design characteristic excludes youth whose involvement with the child welfare system may have ended prior to age 16. Second, the study operationalized mental health and substance use problems with service use, but this does not include individuals who may have had mental health and substance use problems but were not necessarily accessing public

treatment services. Additionally, the use of public welfare records as a measure of socioeconomic status is problematic because in many jurisdictions, an adult may not be eligible for receipt of welfare or subsidized housing if he or she has a felony conviction (American Bar Association, 2009; Lopes et al., 2012). Consequently, the rate of public welfare receipt for the sample may be an underestimation of the number of individuals in financial need. Finally, future research should control for other factors that may impact outcomes for individuals with histories of child maltreatment and/or juvenile justice involvement, such as race/ethnicity, gender, type and severity of child maltreatment, and prior forms of more severe contact with the juvenile justice system (Allwood & Widom, 2013; Boden et al., 2007; Bullis et al., 2002; Keeley, 2006; King et al., 2011; Perez & Widom, 1999; Widom et al., 1995; Widom et al., 2006).

In a study of females in the juvenile justice system with a prior report of child abuse or neglect, Bright and Jonson-Reid (2010) found relatively low rates of mental health service use and criminal justice involvement in adulthood. The sample included three groups of juvenile justice involved females: those with a history of child maltreatment, those with a history of child maltreatment and childhood poverty, and those with a history of childhood poverty but no maltreatment. The results indicated that for the entire sample ($n=700$), 9% had subsequent involvement with the adult criminal justice system, 7.6% used publicly funded mental health or substance use services in young adulthood, and 21.3% utilized welfare. The study did not report the results for crossover youth specifically, but the findings did suggest that a history of childhood poverty had a significant impact on the results for the crossover population. More specifically, maltreated females in the juvenile justice system with no history of poverty in childhood had a decreased risk of being arrested in adulthood as compared to maltreated females

in the juvenile justice system with a history of child poverty but no maltreatment and females in the juvenile justice system with histories of both maltreatment and child poverty.

Bright and Jonson-Reid (2010) also found that a juvenile justice intervention, which included probation supervision or placement, was significantly associated with an increase in risk for adult criminality in this population. More specifically, females in the juvenile justice system who received probation or placement pursuant to a delinquency petition, which included only 10% of the sample, were three times more likely to be arrested in adulthood as compared to females who did not receive probation or placement. This finding is important because it speaks directly to the impact of a juvenile justice intervention on recidivism in adulthood for this particular population.

Limitations and Future Directions

As the above literature review suggests, elevated rates of PTSD and prior traumatic experiences are consistently found among youth in the juvenile justice system (Abram et al., 2004; Cruise & Ford, 2011; Gover & MacKenzie, 2003; King et al., 2011; Sedlak & McPherson, 2010). Nonetheless, although cross-sectional studies have examined the overall characteristics of crossover youth, there are still a limited number of studies that examine the long-term functioning of maltreated youth in the juvenile justice system (Bright & Jonson-Reid, 2010; Conger & Ross, 2001; Conger & Ross, 2006; Culhane et al., 2011; Dannerbeck & Yan, 2011; Halemba et al., 2004; Halemba & Siegel, 2011; Herz et al., 2010; Herz & Ryan, 2008b; Huang et al., 2012; King et al., 2011; Ryan et al., 2007). Indeed, the dearth of information on adult functioning for this population is one of the most striking limitations of the research in this area. Given the link between child maltreatment and delinquency and the known consequences of juvenile justice involvement and child maltreatment independently, the lack of knowledge about

how juvenile justice system contact impacts crossover youth long-term represents a notable gap in the literature. There is also limited information on gender or race/ethnicity differences in crossover youth outcomes. Consequently, more research is needed to examine long-term outcomes for crossover youth overall, and potential race and ethnicity differences in these outcomes.

There are several other limitations to the research on the impact of juvenile justice involvement that should be addressed by future studies. One limitation involves the operationalization of system contact or involvement. Specifically, there are many different points of contact, ranging in severity from police involvement to incarceration, and these various points of contact may have differential effects on future outcomes. Despite this, the majority of studies focus on the most severe disposition (i.e., incarceration), and very few studies examine the role of an arrest or police contact on subsequent recidivism for youth (Bernburg & Krohn, 2003). A second limitation is that research directly comparing matched samples of youth, both with and without system involvement, is lacking (Bernburg & Krohn, 2003; Lanctot et al., 2007). Using comparison samples that are matched on variables that have been found to be risk factors for adult criminality, such as self-reported delinquent behavior, would allow for a more thorough investigation of the impact of the juvenile justice on re-arrest in adulthood, above and beyond these factors (Lanctot et al., 2007). Third, although some studies examine gender differences in long-term outcomes for juvenile justice involved youth, there is limited knowledge about the long-term outcomes for females in the juvenile justice system (Bernburg & Krohn, 2003; Bright & Jonson-Reid, 2010; Lanctot et al., 2007). Given the recent increase in female juvenile justice involvement (Puzzanchera & Adams, 2011), it is important to gain a better understanding of long-term recidivism outcomes for this specific population.

Conclusion

Adolescence is a critical time for building social, academic and vocational skills, developing a sense of independence and competence, and working toward goals that increase the likelihood of a successful transition into young adulthood (Arnett, 2000; Lerner & Steinberg, 2009). However, youth who spend all or part of their adolescence in the juvenile justice system appear less likely to achieve these milestones, which in turn compromises their development, reduces their ability to successfully navigate adulthood, and increases the likelihood of negative future outcomes (Bernburg & Krohn, 2003; Bullis et al., 2002; Bushway, 1998; Lanctot et al., 2007; Teplin, Welty, Abram, Dulcan, & Washburn, 2012). Not only do these outcomes negatively impact youth on an individual level, they also have a negative impact on the community as a whole. As such, in its current state, the juvenile justice system does not appear to be successfully achieving its stated goals of rehabilitation and community protection.

Although the existing research on the impact of the juvenile justice system primarily examines juvenile justice involved youth as a homogenous population, many youth in the system have vulnerabilities that may make them even more susceptible to the iatrogenic effects of system involvement. For example, abused and neglected youth, who are found at high rates in the juvenile justice system, are already at higher risk for negative outcomes. If maltreated youth go on to experience a “double jeopardy” effect as a result of their contact with the juvenile justice system, this might be an indication that their needs are not being adequately met by either system. Indeed, those few studies that have examined youth in the system with a history of child maltreatment have indeed found worse outcomes for this population as compared to youth without a history of maltreatment. Consequently, additional research is needed to gain a more

complete understanding of the long-term functioning of maltreated youth in the juvenile justice system.

Current Study

Abused and neglected youth are already at higher risk for negative outcomes, and there is evidence that these youth are treated more harshly in the juvenile justice system than youth without maltreatment histories. Although there are few empirical studies examining the impact of the juvenile justice system on crossover youth long-term, agencies and other organizations interested in juvenile justice reform are beginning to pay closer attention to this population. For example, the Child Welfare and Juvenile Justice Integration Initiative, which involves a partnership between the Casey Family Foundation and the Georgetown Center for Juvenile Justice Reform, has recently developed a practice model for reducing the number of crossover youth and increasing the transparency and coordination between systems (Bilchik, 2010; Herz & Fontaine, 2013; Herz et al., 2012). In order to achieve these objectives, Herz et al. (2012) noted that additional research on the long-term outcomes for crossover youth is needed. Moreover, in a recently released report, the Committee on Assessing Juvenile Justice Reform of the National Research Council called for more comprehensive studies to target the existing racial disparities in the juvenile justice system, and the Committee specifically recommended additional research on crossover youth in support of this goal (Bonnie, Johnson, Chemers, & Schuck, 2012). Consequently, the current study will not only provide critical information to improve the health and well-being of a potentially vulnerable population of youth, but is also in direct support of several stated research and policy objectives.

The purpose of the current study was to examine how contact with the juvenile justice system affects long-term functioning for youth who also have a history of child maltreatment.

More specifically, this work examines whether crossing between the juvenile justice and child welfare systems has iatrogenic effects for these youths, above and beyond the effects associated with juvenile delinquency and child maltreatment independently. This research addressed three major questions: (1) What are the long-term consequences for crossover youth? (2) Are there gender differences in the consequences of involvement in the child welfare and juvenile justice systems? (3) Are there race/ethnicity differences in the consequences of involvement in both the child welfare and juvenile justice systems?

Hypotheses

The present study has three major hypotheses.

1. Compared to those without a juvenile arrest, individuals with a juvenile arrest will exhibit higher rates of psychiatric disorders [Major Depressive Disorder (MDD), Dysthymia, Generalized Anxiety Disorder (GAD), and Posttraumatic Stress Disorder (PTSD)], alcohol (abuse or dependence) and substance use (abuse or dependence) disorders, and adult criminality, and decreased levels of educational attainment and employment in adulthood.

2. Compared to those with no histories of child abuse and neglect, individuals with histories of child abuse and neglect will have higher rates of psychiatric disorders [MDD, Dysthymia, GAD, PTSD], alcohol (abuse or dependence) and substance use (abuse or dependence) disorders, and adult criminality, and decreased levels of educational attainment and employment in adulthood.

3. Compared to all other groups (non-maltreated individuals, with or without a juvenile arrest), crossover youth (i.e., maltreated individuals with a juvenile arrest) will exhibit the highest rates of psychiatric disorders, alcohol and substance use disorders, and adult criminality, and the lowest rates of educational attainment and employment in adulthood.

Additionally, potential differences in gender and race/ethnicity will be explored for each of the above hypotheses. However, given the limited research available on long-term outcomes for crossover youth, these analyses will be exploratory and no specific hypotheses about the roles of gender and race/ethnicity will be made.

Methods

Participants and Procedure

The current study utilized data from a prospective cohort design study conducted by Dr. Cathy Spatz Widom². In the original study, children with court-substantiated cases of abuse and neglect were matched with non-maltreated children and followed into young adulthood (Widom, 1989a). Many of the components of the design described within this proposal are adapted directly from previous publications, with the express permission of Dr. Widom.

During the initial phase of the original study, all cases of physical and sexual abuse and neglect processed during the years 1967 through 1971 in the county family court (situated in a metropolitan area in the Midwest) and validated and substantiated by the court were included (Widom, 1989b). Abuse and neglect cases from the adult criminal courts were also included. To avoid any ambiguity such as might arise in cases in which delinquency preceded abuse or neglect, or might have caused it, the sample of abuse and neglect cases was restricted to those in which children were less than 11 years of age at the time of the incident (Widom, 1989a). Cases were also excluded if they represented a) adoption of the child as an infant; b) “involuntary” neglect; c) placement only; or d) failure to pay child support. In the end, 908 abuse and neglect cases were used in the original study.

² The information used here and the data to test these hypotheses has been provided by Dr. Widom and the description of the methods draws heavily on prior publications, with her permission.

A control group was matched with the sample of maltreated children on the basis of age, sex, race, and approximate socioeconomic background (Widom, 1989a). Any child in the control group with an official record of abuse and neglect was eliminated, regardless of whether the record was before or after the period of the study, and a second matched child was included instead. Using county birth record information, children under school age were matched with children of the same sex, race, date of birth (plus or minus 1 week), and hospital of birth. Children of school age were matched as closely as possible by sex, race, date of birth, (plus or minus six months), and class in the elementary school system during 1967 through 1971. Matches were found for 667 (73%) of the 908 abuse and neglect cases, producing a total of 1575 participants in the initial phase of the study.

During the initial phase, official criminal histories for the abused and/or neglected children were compared with those of the matched comparison group (Widom, 1989b). Updated criminal history checks were compiled in 1994 (Maxfield & Widom, 1996). The second phase of the study involved tracing, locating, and interviewing participants a mean of 22.3 years later (during 1989-1995) (Widom, 1999). These interviews included a series of structured and semi-structured questionnaires and rating scales to assess the participants across a number of domains, including cognitive, intellectual, emotional, psychiatric, social, and interpersonal functioning.

The interviewers were blind to the purpose of the study, to the inclusion of an abused and/or neglected group, and to the participants' group membership. Similarly, the participants were blind to the purpose of the study and were told that they had been selected to participate as part of a large group of individuals who grew up in the late 1960s and early 1970s. Institutional review board approval was obtained, and individuals who participated signed a consent form

acknowledging that they understood the conditions of their participation and were participating voluntarily.

Of the original 1575 participants, 1307 (83%) were located and 1196 (76%) interviewed between 1989 and 1995 (Widom, 1999). Of the persons who were not interviewed, 43 were deceased, 8 were incapable or being interviewed, 268 could not be located, and 60 refused to participate (a refusal rate of 3.8%). There were no significant differences in those interviewed compared to the initial sample in terms of age or the percentage male, percentage white, victims of abuse or neglect, or poverty in childhood census tract. The interviewed group was somewhat more likely to have an official criminal arrest record than the original sample (50% vs. 45%), most likely because people with a criminal history are easier to locate through the use of official records.

At the time of this interview, the average age of the participants was 28.72 years ($SD = 3.84$, range = 18-40) (Widom, 1999). Approximately half of the interviewed sample was female (48.7%) and about two thirds were White (62.9%). The average highest grade of school completed for the group was 11.47 ($SD = 2.19$, range = 5-26). The group is heavily weighted toward the lower end of the socioeconomic spectrum. The median occupational level for the group was semi-skilled workers, and less than 7% were in levels 7-9 (managers through professionals).

For purposes of the current study, the entire sample ($n = 1,196$) was divided into four groups: (1) participants with a history of abuse and neglect and a juvenile arrest (crossover) ($n = 180$), (2) participants with a history of abuse and neglect and no juvenile arrest (maltreated only) ($n = 496$), (3) participants with a juvenile arrest and no history of abuse and neglect (juvenile arrest only) ($n = 91$), and (4) participants with no history of abuse and neglect and no juvenile

arrest (no maltreatment/no juvenile arrest) ($n = 429$). Throughout the remainder of this dissertation, the terms “crossover,” “arrested,” “maltreated” and “neither” or “no maltreatment or arrest” will be used when referring to these four groups.

Variables and Measures

For the current study, independent variables include childhood abuse and neglect and juvenile arrest. Outcome variables include DSM-III-R lifetime diagnoses of psychiatric disorders (MDD, Dysthymia, PTSD, GAD, and alcohol and substance abuse and dependence), employment, educational attainment, and adult criminality.

Independent variables.

Childhood abuse and neglect. Childhood abuse and neglect refers to court-documented cases of childhood (ages 0-11) physical and sexual abuse and neglect. Physical abuse cases included injuries such as bruises, welts, burns, abrasions, lacerations, wounds, cuts, bone and skull fractures, and other evidence of physical injury to the child (Widom, 1989a). Sexual abuse charges varied from felony sexual assault to more specific charges of “fondling or touching in an obscene manner,” sodomy, incest, and rape. Neglect cases reflected a judgment that the parents’ deficiencies in child care were beyond those found acceptable by community and professional standards at the time. These cases represented extreme failure to provide adequate food, clothing, shelter, and medical attention to children.

Juvenile arrest. Information on delinquency and juvenile arrests was gathered from law enforcement records from local, state, and federal agencies (Widom, 1989b; Maxfield & Widom, 1996). Arrest records were initially collected in 1987-88, and again in 1994 when the age of the participants ranged from 18 to 40 years old (Maxfield & Widom, 1996). An “arrest as a juvenile”

included delinquency offenses, as well as arrests for any other non-traffic offense while the person was 17 years old or younger. Both violent and non-violent crimes were included.

Outcome variables.

Major Depressive Disorder (MDD), Dysthymia, Post-Traumatic Stress Disorder (PTSD) and Generalized Anxiety Disorder (GAD). MDD, Dysthymia, PTSD and GAD were measured using the National Institute of Mental Health Diagnostic Interview Schedule, Version III Revised (DIS-III-R; Robins, Helzer, Cottler, & Golding, 1989) at the follow-up interview when participants were approximately age 29. The DIS-III-R is a fully structured interview schedule designed for use by lay interviewers. The interviewers were highly trained individuals, experienced in the administration of the DIS. The interviewers received an intensive week of training and were carefully supervised by the survey company and project staff. At the end of training, interviewers were required to conduct a full interview with a community volunteer, which was observed and critiqued by a member of the research staff. Computer programs for scoring the DIS-III-R were used to compute *DSM-III-R* (1987) diagnoses (American Psychiatric Association, 1987). The DIS has been used in prior community-based studies of psychiatric disorders, and adequate reliability and validity have been reported (Leaf, Myers, & McEvoy, 1991).

MDD is characterized by the presence of a depressed mood or anhedonia for at least two weeks, accompanied by four additional symptoms which can include sleep disturbance, weight loss or gain, fatigue, feelings of worthlessness, difficulty concentrating, psychomotor retardation, or suicidal thoughts. Dysthymia is characterized by a depressed mood that continues for at least two years accompanied by at least two symptoms, including hopelessness, low energy or fatigue, low self-esteem, and insomnia or hypersomnia (American Psychiatric Association, 1987). A

diagnosis of PTSD requires exposure to a traumatic event, a response involving helplessness, fear or horror, symptoms of re-experiencing, numbing or persistent avoidance, and increased arousal for more than one month (American Psychiatric Association, 1987). GAD is characterized by excessive worry about multiple events that lasts for a minimum of six months and is difficult to control (American Psychiatric Association, 1987). GAD is also accompanied by at least three additional symptoms that may include fatigue, tension, disturbance in sleep, feelings of restlessness, irritability, and inability to concentrate. For the current study, prevalence data was presented for lifetime diagnoses of MDD, dysthymia, PTSD, and GAD. Lifetime prevalence refers to the proportion of the group who ever experienced MDD, dysthymia, PTSD, or GAD by the time of the first interview at approximate age 29.

Alcohol or substance dependence and alcohol or substance abuse. The DIS-III-R was also used to assess alcohol or substance dependence, as well as alcohol or substance abuse. Alcohol or substance dependence requires the presence of at least three of nine symptoms, including (1) use of the substance in larger quantities than intended, (2) unsuccessful attempts to decrease or refrain from use, (3) a large amount of time spent obtaining, using, or recovering from use, (4) intoxication or withdrawal “when expected to fulfill major role obligations,” (5) relinquishing important activities because of use, (6) continued use despite knowledge of a recurring “social, psychological, or physical problem that is caused or exacerbated by the use of the substance,” (7) increased tolerance, (8) symptoms of withdrawal, and (9) use of the substance to avoid withdrawal symptoms (American Psychiatric Association, 1987, p. 167-168). Alcohol or substance abuse is characterized by either (1) the continuous use of alcohol or drugs despite knowledge of a recurring “social, occupational, psychological, or physical problem that is caused or exacerbated by use” of the substance or (2) “recurrent use in situations in which use is

physically hazardous (e.g., driving while intoxicated)” (American Psychiatric Association, 1987, p. 169). Alcohol or substance abuse cannot be diagnosed if an individual has previously met the criteria for dependence. The symptoms of both abuse and dependence must either occur repeatedly over time or be present consistently for a period of at least one month. For the current study, prevalence data was presented for lifetime diagnoses of alcohol or substance abuse and/or dependence. Lifetime prevalence refers to the proportion of the group who ever experienced alcohol or substance abuse and/or dependence, by the time of the first interview at approximate age 29.

Educational attainment and employment. During the first interview (1989-1995), participants were asked a series of questions about their education and employment. Educational outcomes included the highest grade of school completed by the participant and high school graduation. Completion of twelve years of school was an indication of high school graduation, which was coded as 0 for no and 1 for yes. Employment outcomes included current employment status and job skill. Current employment status was coded as 0 for unemployed, coded as 1 for homemaker, retired, disabled, in school, or other, and coded as 2 for employed. Measure of job skill was based on the Hollingshead occupational index (Hollingshead, 1975), ranging from 1 to 9. A job was considered “skilled” if the Hollingshead score is greater than 3, where 3 was considered “semi-skilled.” Due to small sample sizes within each of the 9 categories in the current study, job skill was collapsed into two distinct categories: menial or unskilled employment ($n = 641$) (coded as 0) and skilled, clerical, technical or professional ($n = 525$) (coded as 1).

Adult criminality. Information on adult arrests was gathered from local, state, and federal law enforcement records during the initial phase of the study (Widom, 1989b), and updated

information was gathered again in 1994 when participants were mean age 32.5 and ranged from 18 to 40 years old (Maxfield & Widom, 1996). An “adult arrest” included a criminal arrest for a nontraffic offense when individuals were 18 years or older. Offenses included both violent and nonviolent crimes.

Control variables.

Demographic characteristics. Demographic characteristics were used as control variables. Age was a continuous measure reflecting the age of the participants at the time of the first follow-up interview (1989-1995). Gender was coded 1 for female and 0 for male. Race/ethnicity was coded 1 for White, non-Hispanic participants ($n = 735$), and 0 for Black, non-Hispanic participants ($n = 389$), Hispanic, White or Black, participants ($n = 45$), American Indian participants ($n = 21$), and Pacific Islander participants ($n = 1$), as well as those participants identifying as “other” ($n = 5$). For the remainder of this dissertation, “White” and “Black and Hispanic” will be used to describe the race/ethnicity categories. The demographic characteristics for each group can be found in Table 1.

Self-reported delinquency. Unlike juvenile arrest, self-reported delinquency represents a measure of delinquent behavior that is not necessarily influenced by systemic factors. Since the current study examines the impact of the juvenile justice system on maltreated youth, self-reported delinquency was used as a control variable in an effort to separate the system’s impact on long-term outcomes from the impact of delinquent behavior overall on long-term outcomes. In the current study, self-reported delinquency was represented by the total number of types of delinquent behaviors engaged in by the person (i.e., variety score), including status offenses, reported by a participant prior to age 18 on a measure adapted from Wolfgang and Weiner (1989). The number of delinquent behaviors reported ranged from 0 to 16 and included such

items as sexual and physical assault, carrying and/or using weapons, stealing, property damage, breaking and entering, auto theft, disruption of neighborhood peace, and running away (Wilson & Widom, 2010).

Statistical Analysis

For dichotomous dependent variables, logistic regressions were used with controls for age, sex, race/ethnicity, and self-reported delinquent behavior. The assumptions for logistic regression, including at least 10 cases per independent variable, no multi-collinearity, no specification errors, and interval, ratio, or dichotomous independent variables (Meyers, Gamst, & Guarino, 2006), were all tested and satisfied for each of the main analyses.

For the continuous dependent variable of number of years of school completed, the groups were compared using univariate analyses of variance (ANOVA) and analyses of covariance (ANCOVA) with post hoc tests. The sample met the assumptions of independence and approximate normality, which was assessed using Q-Q plots. The assumption of homoscedasticity was also assessed using Levene's Test for Equality of Error Variances (Levene, 1960). In cases where the data violated the assumption of homoscedasticity for ANOVA or ANCOVA, the Welch (1951) test and Games-Howell post-hoc test were used and reported (Field, 2013; Grissom, 2000).

To examine potential gender and race/ethnicity differences, all analyses were re-run separately for males and females, as well as for White participants and Black and Hispanic participants. It should be noted that sample sizes were small for many of the gender and race analyses, especially in the comparisons between crossover youth and other groups. As a result, statistical power to find differences between groups was decreased. Findings by gender and race

will be presented for purposes of this dissertation, but caution should be used in relying too heavily on those results.

Since missing data did not exceed 1% in any group by outcome variable, listwise deletion was used to address cases with missing data in each analysis. Z scores were used to assess for univariate outliers among continuous variables by group, and no univariate outliers were discovered for the continuous variable of number of years of school completed. However, Mahalanobis' distance detected one multivariate outlier in the group with no maltreatment or arrest, and this case was excluded from further analyses. This reduced the overall sample size to 1,195, and the sample size of the group with no maltreatment or arrest to 428.

Results

Demographic and other characteristics of the four groups in the sample can be found in Table 1. Overall, the crossover group represented 26% of all youth with histories of child maltreatment and 66% of all youth with histories of a juvenile arrest. Additionally, Black and Hispanic youth represented 49.4% of crossover youth, which was significantly higher than maltreated youth and youth with no maltreatment or arrest youth. Although the number of Black and Hispanic youth was also proportionally higher in the crossover group as compared to the arrested group, this difference did not reach statistical significance. There were also significantly more males in the crossover group as compared to the maltreated and no maltreatment or arrest groups, and crossover youth were also arrested at a significantly younger age and self-reported a greater number of delinquent acts than these two groups. However, there were no significant differences between crossover youth and arrested youth with regard to gender, age at first arrest, or self-reported delinquency.

Consequences for Youth with a Juvenile Arrest

The first hypothesis predicted that individuals with a juvenile arrest would demonstrate higher rates of psychiatric disorders, including alcohol and substance abuse/dependence, higher rates of adult criminality, and lower rates of educational attainment and employment in adulthood as compared to those without a juvenile arrest. Prevalence rates for psychiatric disorders for youth with a juvenile arrest can be found in Table 2, and rates of educational attainment, employment and adult arrest can be found in Table 3.

After controlling for demographic variables, logistic regression analyses indicated that individuals with a juvenile arrest were significantly more likely than those without a juvenile arrest to have lifetime diagnoses of dysthymia, PTSD, and alcohol abuse/dependence (see Table 2). Separate analyses by gender and race revealed that females with a juvenile arrest were significantly more likely to have a diagnosis of PTSD as compared to females without a juvenile arrest. In addition, males with a juvenile arrest were significantly more likely to have a diagnosis of dysthymia than males without a juvenile arrest (see Table 2). Black and Hispanic individuals with a juvenile arrest were significantly more likely to have diagnoses of dysthymia, PTSD, and alcohol abuse/dependence as compared to Black and Hispanic individuals without a juvenile arrest. In contrast, there were no significant differences in the likelihood for any psychiatric disorder among White individuals with and without a juvenile arrest. After self-reported delinquency was included in the models, there were no longer any significant differences in likelihood for a psychiatric disorder between arrested and non-arrested groups (overall, male, female, or Black and Hispanic).

With regard to educational attainment, individuals with a juvenile arrest completed significantly fewer years of school ($M_{\text{juvenile arrest}} = 10.66$; $M_{\text{no juvenile arrest}} = 11.70$), $F(1,1187) =$

53.54, $p < .001$, and were significantly less likely to graduate high school than those with no juvenile arrest (see Table 3). Individuals with a juvenile arrest were also more likely to be unemployed and more likely to be employed in an unskilled position. Arrested youth were roughly four times more likely to be arrested in adulthood as compared to youth with no juvenile arrest history.

Males with a juvenile arrest also completed fewer years of school ($M_{\text{juvenile arrest}} = 10.61$; $M_{\text{no juvenile arrest}} = 11.73$), $F(1, 606) = 43.98$, $p < .001$, were less likely to graduate high school, and were more likely to be unemployed than males without a juvenile arrest (see Table 2). Similarly, females with a juvenile arrest completed fewer years of school, ($M_{\text{juvenile arrest}} = 10.81$; $M_{\text{no juvenile arrest}} = 11.68$), $F(1, 578) = 12.14$, $p < .01$, were less likely to graduate high school, and were more likely to be unemployed than females without a juvenile arrest (see Table 3). With regard to type of employment, males with a juvenile arrest were significantly more likely to be employed in an unskilled job than males without a juvenile arrest, but juvenile arrest did not have a significant impact on type of employment for females. Both males and females with a juvenile arrest were also roughly four times more likely to be arrested in adulthood as compared to males and females without a juvenile arrest (see Table 3).

Black and Hispanic individuals with a juvenile arrest had worse outcomes than Black and Hispanics without a juvenile arrest on all education and employment measures, and were also six times more likely to be arrested in adulthood (see Table 3). For Whites, a juvenile arrest had negative consequences for educational attainment and likelihood for employment, and Whites with a juvenile arrest were more than twice as likely to be arrested in adulthood as Whites without a juvenile arrest. However, similar to females, a juvenile arrest history did not have a significant impact on type of employment for White individuals. Notably, controlling for self-

reported delinquency had little impact on education, employment, or adult arrest outcomes, regardless of gender or race.

In sum, youth with a juvenile arrest were significantly more likely to have lifetime diagnoses of dysthymia, PTSD, and alcohol abuse/dependence, and these findings differed by gender and race. Juvenile arrest also increased the likelihood for negative outcomes in the areas of employment, educational attainment, and adult arrest. With the exception of unskilled employment, the negative impact of a juvenile arrest on psychosocial outcomes was largely consistent for males, females, Whites, and Black and Hispanics. However, there was no longer a significant relationship between juvenile arrest and any psychiatric disorder after controlling for self-reported delinquency, but self-reported delinquency did not significantly alter the relationship between a juvenile arrest and likelihood for negative psychosocial outcomes.

Consequences for Youth with Histories of Abuse and Neglect

The second hypothesis predicted that individuals with histories of child abuse and neglect would have higher rates of psychiatric disorders [major depressive disorder (MDD), dysthymia, generalized anxiety disorder (GAD), and post-traumatic stress disorder (PTSD)], alcohol (abuse or dependence) and substance use (abuse or dependence) disorders, and adult criminality, and decreased levels of educational attainment and employment in adulthood, compared to those without such histories. Prevalence rates for psychiatric disorders for maltreated versus non-maltreated youth can be found in Table 4, and rates of educational attainment, employment and adult arrest can be found in Table 5.

Overall, youth with histories of maltreatment were significantly more likely to have diagnoses of dysthymia, GAD, and PTSD than youth without such histories, even after controlling for race, age, and self-reported delinquency (see Table 4). Maltreated males were also

significantly more likely to have diagnoses of dysthymia, GAD, and PTSD than non-maltreated males, but only GAD and dysthymia remained significant after self-reported delinquency was included in the model (see Table 4). The results for females differed from males and from those of the overall group. Specifically, after controlling for race and age, maltreated females were significantly more likely to have diagnoses of dysthymia, PTSD, and alcohol abuse/dependence as compared to non-maltreated females, but only the difference in likelihood for PTSD remained significant after controlling for self-reported delinquency.

After controlling for gender and age, White maltreated youth were significantly more likely to have diagnoses of MDD, dysthymia, and PTSD compared to White non-maltreated youth, but only PTSD remained significant after self-reported delinquency was included (see Table 4). Black and Hispanic youth with histories of maltreatment were significantly more likely than Black and Hispanic youth without such histories to have a diagnosis of dysthymia, even after controlling for gender, age, and self-reported delinquency.

As expected, youth with histories of maltreatment completed significantly fewer years of school ($M_{\text{maltreated}} = 10.99$; $M_{\text{non-maltreated}} = 12.09$), $F(1, 1190) = 79.06$, $p < .001$, and were significantly less likely to graduate from high school (see Table 5) as compared to youth with no history of maltreatment. Maltreated youth were also significantly more likely to be unemployed, significantly more likely to be employed in an unskilled position, and significantly more likely to be arrested in adulthood than non-maltreated youth. Education, employment, and adult arrest outcomes did not differ by gender or by race (see Table 5).

In an effort to further understand the impact of the juvenile justice system on maltreated youth, and extend the current literature, secondary analyses were also conducted to compare youth with histories of maltreatment, but no juvenile arrest (maltreated only) and youth with

histories of a juvenile arrest, but no maltreatment (arrested only). Logistic regression analyses revealed that these two groups did not differ significantly in likelihood for any psychiatric disorder (see Table 6), or in likelihood for educational attainment or employment (see Table 7). Arrested only youth were two and a half times more likely to be arrested in adulthood as compared to maltreated only youth. After controlling for demographic variables and self-reported delinquency, there were no differences between arrested only and maltreated only youth in the likelihood of psychiatric disorders, educational attainment, or employment for either gender or race (see Tables 6 and 7, respectively). However, arrested only males and Blacks and Hispanics were significantly more likely to be arrested in adulthood as compared to maltreated only males and Blacks and Hispanics after controlling for race, age, and self-reported delinquency (see Table 7).

Consequences for Crossover Youth

The third hypothesis predicted that crossover youth would have the highest rates of psychiatric disorders and adult criminality, and the lowest rates of educational attainment and employment in adulthood as compared to all other groups. Prevalence rates for psychiatric disorders of crossover youth versus other groups can be found in Table 8, and rates of educational attainment, employment, and adult arrest can be found in Table 11.

Proportionally, crossover youth had the highest rates of dysthymia, GAD, and alcohol abuse/dependence, but not MDD, PTSD, or drug abuse/dependence. However, after controlling for demographic variables and self-reported delinquency, logistic regression analyses revealed that crossover youth did not differ significantly from arrested youth in likelihood for any psychiatric disorder, and only differed significantly from maltreated youth on drug abuse/dependence (see Table 8). The latter difference was in an unexpected direction, with

maltreated youth significantly more likely to have a diagnosis of drug abuse/dependence than crossover youth after controlling for self-reported delinquency. A similar result was found for the comparison between non-maltreated, non-arrested youth and crossover youth, with non-maltreated, non-arrested youth significantly more likely to have a drug abuse/dependence diagnosis after controlling for self-reported delinquency. Crossover youth were also significantly more likely to have lifetime diagnoses of dysthymia, GAD, and PTSD as compared to youth with no maltreatment or arrest. In sum, the results revealed very few differences between crossover youth and maltreated or arrested youth in likelihood for long-term psychiatric disorders.

The overall similarity between crossover youth and maltreated or arrested youth in likelihood for psychiatric disorders was also replicated by gender and race. For example, there were no significant differences between female crossover youth and female arrested youth in likelihood for any psychiatric disorder, and female crossover youth only differed from female maltreated youth in likelihood for drug abuse/dependence after controlling for self-reported delinquency (see Table 9). Once again, this latter difference was in the opposite direction than expected, with maltreated youth at higher risk for drug abuse/dependence than crossover youth. After controlling for self-reported delinquency, male crossover youth did not differ significantly from male maltreated youth on any psychiatric disorder. Unlike the overall results, male crossover youth were significantly more likely to have a diagnosis of GAD than male arrested youth. With regard to race, White crossover youth did not differ significantly from White arrested youth or White maltreated youth on any psychiatric disorder (see Table 10). Similar results were found for Black and Hispanic youth with the exception of drug abuse/dependence. Specifically, like females, Black and Hispanic maltreated youth were significantly more likely

than Black and Hispanic crossover youth to have a diagnosis of drug abuse/dependence after controlling for self-reported delinquency.

With regard to psychosocial outcomes, crossover youth had proportionally higher rates of unemployment, employment in an unskilled position, and arrest in adulthood, as well as lower rates of educational attainment, in comparison to other groups (see Table 11). Logistic regression results indicated that crossover youth were more than twice as likely to be unemployed than arrested youth, but did not differ significantly from arrested youth in likelihood for educational attainment, skilled versus unskilled employment, or adult arrest (see Table 11). In contrast, crossover youth had significantly worse outcomes than maltreated youth on almost all psychosocial outcomes. Specifically, as compared to maltreated youth, crossover youth completed fewer years of school ($M_{crossover} = 10.57$; $M_{maltreated\ only} = 11.14$), $F(3, 1185) = 44.60$, $p < .001$; $p < .05$, 95% CI [-1.14, -0.17], were less likely to graduate high school or be employed, and were more than three times more likely to have an adult arrest. However, crossover youth did not differ from maltreated youth in likelihood for skilled versus unskilled employment. Crossover youth also had worse outcomes on all psychosocial variables as compared to youth with no maltreatment or arrest. The inclusion of self-reported delinquency as a control variable did not significantly alter the results for any psychosocial outcomes.

Separate analyses by gender revealed that male crossover youth had significantly worse employment outcomes than male arrested youth, but did not differ from male arrested youth on educational attainment or likelihood for adult arrest (see Table 12). Male crossover youth also had more negative outcomes than male maltreated youth in risk for unemployment, number of years of school completed ($M_{crossover} = 10.47$; $M_{maltreated\ only} = 11.11$), $F(3, 604) =$, $p < .001$; $p < .01$, 95% CI [-1.33, -0.13], high school graduation, and adult arrest, but did not differ from male

maltreated youth on type of employment. Male crossover youth had worse outcomes on every psychosocial variable as compared to males with no maltreatment or arrest.

Unlike males, female crossover youth did not differ significantly from female arrested youth on any psychosocial outcome (see Table 12). After controlling for self-reported delinquency, female crossover youth only differed from female maltreated youth in risk for adult arrest, with female crossover youth three times more likely to be arrested in adulthood than female maltreated youth. There were no significant differences between female crossover youth and any other group in likelihood for skilled versus unskilled employment.

Separate analyses by race revealed similarities between White crossover youth and White arrested youth on most psychosocial outcomes with the exception of risk for unemployment (see Table 13). White crossover youth also completed significantly fewer years of school ($M_{crossover} = 10.24$; $M_{maltreated\ only} = 10.94$), $F(3, 725) = 26.78, p < .001$; $p < .05$, 95% CI [-1.42, -.02] and were more likely to be arrested in adulthood than White maltreated youth, but were similar to White maltreated youth in likelihood for unemployment, unskilled employment, and high school graduation. White crossover youth had worse outcomes on every psychosocial variable as compared to White youth with no maltreatment or arrest.

Black and Hispanic crossover youth did not differ from Black and Hispanic arrested youth on any psychosocial outcome (see Table 13). As compared to Black and Hispanic maltreated youth, Black and Hispanic crossover youth were significantly more likely to be unemployed, and significantly less likely to graduate high school. Black and Hispanic crossover youth were also four times more likely to be arrested in adulthood as compared to Black and Hispanic maltreated youth, but did not differ from Black and Hispanic maltreated youth in likelihood for skilled versus unskilled employment. Black and Hispanic crossover youth had

worse outcomes on every psychosocial outcome as compared to Black and Hispanic youth with no maltreatment or arrest.

Discussion

The current study was one of the first to examine the long-term outcomes of maltreated youth who also had histories of involvement with the juvenile justice system, defined as “crossover youth”. Although it was hypothesized that crossover youth would ultimately have the worst psychiatric, educational, employment, and adult arrest outcomes when compared to other groups of youth, this prediction was not supported across all of the domains of functioning assessed here. These new findings show that having both juvenile justice and child maltreatment histories had the strongest negative impact on educational attainment, unemployment, and adult arrest. For these outcomes in particular, crossover youth were at a significant disadvantage compared to the other groups of youth. In contrast, crossover youth were not at higher risk for the lifetime psychiatric disorders examined here (MDD, Dysthymia, GAD, PTSD, alcohol and substance abuse/dependence) compared to maltreated or arrested youth. Unexpectedly, crossover youth and arrested youth also had strikingly similar characteristics across many outcomes. Taken together, these findings suggest that the impact of dual system involvement on long-term outcomes is more complex than simply a “double jeopardy” effect.

In an effort to fully understand the long-term outcomes for maltreated youth in the juvenile justice system, this study began with separate and independent examinations of the long-term consequences for youth with a history of juvenile arrest and those with a history of child abuse and neglect. The findings for those independent examinations will be discussed first, followed by a more in depth discussion of the long-term consequences specifically for crossover youth.

Consequences for Youth with a Juvenile Arrest

It was hypothesized that youth with a history of juvenile arrest would have higher rates of all lifetime psychiatric disorders, including alcohol abuse/dependence and substance abuse/dependence. In partial support of this hypothesis, youth with a juvenile arrest exhibited an increased likelihood for Dysthymia, PTSD, and alcohol abuse/dependence as compared to youth with no history of a juvenile arrest, even after factoring in the impact of race, gender, and age. These findings fit within existing literature, which has consistently found elevated rates of mental health disorders among juvenile justice-involved youth (Copeland et al., 2007; Fazel et al., 2008; Goldstein et al., 2005; Teplin et al., 2002). Additionally, the increased likelihood of PTSD among youth with a juvenile arrest in the current study highlights the importance of assessing for trauma and PTSD when working with youth in the juvenile justice system, even at less restrictive ends of the system.

Contrary to expectations, there were no differences in the likelihood for MDD, GAD, or drug abuse/dependence between youth with a juvenile arrest history and those with no history of juvenile arrest. This finding was somewhat surprising given the number of studies that have found elevated rates of mental health disorders among juvenile justice involved youth. In fact, although many studies have utilized cross-sectional methodology, at least two prospective studies of juvenile justice-involved youth have found elevated rates of depressive symptoms and substance abuse/dependence seven to thirteen years post-incarceration (Lanctot et al., 2007; Ramchand et al., 2009). However, both of these prior studies utilized mental health symptoms as the measurement of emotional well-being, whereas the current study utilized diagnoses. Since individuals may experience mental health symptoms that do not rise to the level of a diagnosis, this may help to explain the inconsistency between prior studies and the current study findings.

Moreover, Ramchand et al. (2009) oversampled for youth with substance use, which may explain the high rates of substance abuse/dependence symptoms found among youth in their study seven years after incarceration as a juvenile. Prior studies have also examined mental health functioning in incarcerated or formerly incarcerated youth, whereas the current study utilized juvenile arrest as the measurement of juvenile justice system involvement. The inconsistent findings for MDD, GAD, and drug abuse/dependence in the current study, which utilized a less severe form of juvenile justice system involvement, suggest that these disorders may be particularly influenced by severity of juvenile justice system involvement.

One variable that emerged as an important factor in the relationship between juvenile arrest and lifetime prevalence for psychiatric disorders was self-reported delinquency. In fact, although differences were initially found between arrested and non-arrested youth in likelihood for lifetime dysthymia, PTSD, and alcohol abuse/dependence diagnoses, there were no differences between these groups on lifetime psychiatric diagnoses after accounting for self-reported delinquency. This was also true for males, females, and Black and Hispanic youth. This finding speaks to the importance of considering other measures of delinquency when evaluating the impact of juvenile justice system involvement on mental health disorders. This finding also suggests that the link between juvenile justice involvement and long-term mental health functioning is not necessarily as direct as hypothesized, and may be more strongly influenced by the mechanisms underlying delinquent behavior than by contact with the juvenile justice system itself. For example, mental health symptoms that preceded or exacerbated delinquent behaviors could partially explain the relationship between self-reported delinquency and long-term mental health disorders found in the current study.

In contrast to the unexpected findings for juvenile arrest and psychiatric disorders, the results for employment, education, and adult criminality outcomes were all consistent with expectations. As predicted, youth with a juvenile arrest history were less likely to graduate from high school, be employed, or have a skilled job, and almost four times more likely to be arrested in adulthood, as compared to youth with no history of juvenile arrest. This is in line with prior studies, which have consistently found that youth with juvenile justice involvement, including juvenile arrest, are at a greater disadvantage with regard to these life outcomes (Bernburg & Krohn, 2003; Bernburg et al., 2006; Bullis et al., 2002; Cavendish, 2013; Davies & Tanner, 2003; Gatti et al., 2009; Keeley, 2006; Lanctot et al., 2007; Tanner et al., 1999). Notably, self-reported delinquency had no impact on employment, education, and adult arrest outcomes for youth with a juvenile arrest as compared to those without an arrest. This suggests that unlike the relationship between juvenile arrest and psychiatric disorders, the relationship between juvenile justice system involvement and psychosocial factors, such as education and employment, is more strongly related to systemic factors than to factors that are associated with delinquent behavior.

The negative impact of a juvenile arrest on likelihood for educational attainment, unemployment, and adult arrest was also replicated for both genders and races. However, one notable difference in outcomes emerged for females and White youth. Specifically, unlike the results for males and Black and Hispanics, females and Whites with a juvenile arrest were just as likely to have a skilled or unskilled job as females and Whites with no juvenile arrest history. Although puzzling, similar results have also been found in at least one other study examining gender differences in the link between delinquency and future employment. Tanner et al. (1999) found that although delinquency had a negative effect on occupational status for males, females' occupational status was not impacted by involvement in delinquency after accounting for

educational variables. In explaining this unexpected result, the researchers posited that females are less likely than males to be employed in professional positions overall, and may therefore be less impacted by delinquency as another disadvantage. Indeed, in the current study, a greater proportion of males than females reported being employed overall, and a greater proportion of females than males reported being homemakers or in another capacity (i.e., retired, in school, disabled, etc.). Consequently, if a smaller proportion of females than males are employed in traditional workplaces, then an adversity such as a juvenile arrest might not have the same impact on females' employment opportunities as it would for males.

Another possible explanation for the null findings in skilled employment differences for arrested versus non-arrested females and Whites is that a juvenile arrest may be less stigmatizing for these populations as compared to males and Blacks and Hispanics. Males and Black and Hispanics also make up a larger percentage of youth involved at more severe ends of the juvenile justice system, and are more likely to be involved in the adult criminal justice system as well (Glaze & Kaeble, 2014; Kempf-Leonard, 2007; Kutateladze, Andiloro, Johnson, & Spohn, 2014). Consequently, females and Whites in this study may have been less likely to go deeper into the juvenile justice or adult criminal justice system following a juvenile arrest, which may have been a protective factor for them with regard to negative employment outcomes in adulthood. However, if this were the case, it would likely be reflected in other employment and educational outcomes, which it was not. More likely these findings may have been influenced by limitations with the data, resulting from small sample sizes for females and Whites with a juvenile arrest, and decreased statistical power.

Consequences for Youth with Histories of Child Abuse and Neglect

It was hypothesized that youth with histories of child abuse and neglect would have worse outcomes than youth without such histories, including increased rates of psychiatric disorders and adult arrest, and decreased rates of employment and educational attainment. As expected, maltreated youth were more likely to have lifetime psychiatric diagnoses of dysthymia, GAD, and PTSD as compared to non-maltreated youth, even after demographic variables and self-reported delinquency were considered. This finding is in line with prior research, which has demonstrated significant mental health consequences, including dysthymia, GAD, and PTSD, for abused and neglected children (Brown et al., 1999; Herrenkohl et al., 2013; Kaplow et al., 2005; Kearney et al., 2010; Kendall-Tackett et al., 1993; Widom et al., 2007; Widom, 1999).

Surprisingly, there were no differences between maltreated and non-maltreated youth in risk for lifetime MDD, alcohol abuse/dependence, or drug abuse/dependence. However, the results from prior, prospective studies suggest that the type of abuse and different measurements of psychiatric disorders have an impact on results, which may account for the unexpected findings in the current study. For example, in prospective studies using the same sample as in the current study, Widom et al. (2007) found that although there were no differences between abused and neglected individuals and controls in risk for lifetime MDD, maltreated individuals were at greater risk for current MDD. In that study, the results also differed by type of abuse, with physically abused individuals at greater risk of lifetime MDD and neglected individuals at greater risk for current MDD. Widom et al. (2006) also found differences between maltreated and non-maltreated individuals in risk for current, but not lifetime, drug use in middle adulthood.

Child abuse and neglect also had a differential impact on risk for psychiatric disorders by gender and race. For example, although maltreatment increased the risk for dysthymia and PTSD

for both males and females after controlling for race and age, only maltreated females were at higher risk for an alcohol abuse/dependence diagnosis as compared to non-maltreated females. The presence of an increased risk for alcohol abuse/dependence among females, but not males, was surprising since higher rates of alcohol use and alcohol abuse/dependence are generally found among males as compared to females in community samples (Esser et al., 2014; Nolen-Hoeksema, 2004). However, in a prospective study using the same sample as the current study, Widom et al. (1995) found similar results for alcohol abuse/dependence for maltreated females, but not males, in young adulthood, and the link between maltreatment and alcohol abuse/dependence for females remained significant even after controlling for parental alcohol or drug use (Widom, White, Czaja, & Marmorstein, 2007). The results of a subsequent study further indicated that the absence of an increased risk for alcohol abuse/dependence among maltreated males persisted into middle adulthood (Widom et al., 2007). Taken together, these findings suggest that maltreatment has a particularly negative impact on alcohol use for females, but not males, and this impact is not necessarily related to factors such as family history or predisposition for alcohol use disorders.

Maltreatment increased the likelihood for lifetime PTSD for both males and females after accounting for demographic variables, and the link between maltreatment and risk for PTSD remained significant for females, but not males, after accounting for self-reported delinquency. The importance of maltreatment for females in risk for developing PTSD has been demonstrated by prior studies. For example, in a study that directly compared males and females, Koenen and Widom (2009) found that maltreated females had significantly higher rates of PTSD than maltreated males. Higher rates of sexual abuse, including rape, were also found among maltreated females as compared to maltreated males, and females were more likely to have

experienced multiple forms of trauma than males. In turn, both rape and exposure to multiple traumas partially explained the relationship between maltreatment and PTSD for females. The authors proposed that sex differences in psychobiological vulnerability to the negative effects of trauma might help to explain these results. The results of the current study also suggest that delinquent behavior may play a role in explaining the association between maltreatment and risk for lifetime PTSD for males, but not females.

Maltreatment also increased the risk for PTSD among White youth in the current study, but maltreatment did not increase the likelihood for PTSD among Black and Hispanic youth, even after controlling for potentially confounding factors. However, although the findings are somewhat mixed, at least some prior studies have found elevated rates of exposure to violence and PTSD among minorities as compared to Whites (Perilla, Norris, & Lavizzo, 2002; Pole, Best, Metzler, & Marmar, 2005; Roberts, Gilman, Breslau, Breslau, & Koenen, 2011). For example, in a study examining racial/ethnic differences in rates of trauma exposure and PTSD, Roberts et al. (2011) found that Whites reported the highest lifetime rates of exposure to any traumatic event as compared to Hispanics, Blacks, and Asians, whereas Blacks and Hispanics reported the highest rates of child maltreatment, including domestic violence exposure, compared to Whites and Asians. Blacks also had a small but significantly higher risk for developing PTSD as compared to Whites. Consequently, the entire sample of Black and Hispanic youth in the current study might be at increased risk for lifetime PTSD regardless of maltreatment history, which might explain the failure to find differences in lifetime PTSD between maltreated and non-maltreated Blacks and Hispanics. However, further research is needed to test this hypothesis and better understand this finding.

Notably, in contrast to the findings for arrested versus non-arrested youth, self-reported delinquency had no impact on the relationship between child maltreatment and psychiatric outcomes overall. This suggests that unlike the relationship between a juvenile arrest and long-term mental health functioning, delinquent behavior does not necessarily account for the relationship between childhood abuse and neglect and long-term mental health functioning. This makes sense considering that delinquent behavior may have been the reason behind a juvenile arrest, but the same is not true of the relationship between juvenile delinquency and child maltreatment. In fact, child maltreatment increases the likelihood for engaging in juvenile delinquency (English et al., 2002; Maxfield & Widom, 1996; Smith & Thornberry, 1995; Stouthamer-Loeber et al., 2001; Widom, 1989b). Consequently, in the current study, self-reported delinquency may have been associated with the experience of maltreatment, as opposed to driving the relationship between maltreatment and mental health functioning.

Consistent with expectations, maltreated youth were at a significant disadvantage with regard to educational attainment, employment, and adult criminality as compared to non-maltreated youth. These findings were also replicated across race and gender. This is consistent with prior literature on the long-term functioning of youth with histories of maltreatment (Currie & Widom, 2010; Min et al., 2007; Leiter & Johnsen, 1994, 1997; Perez & Widom, 1999; Zolotor et al., 1999), and speaks to the devastating impact that abuse and neglect have on long-term life outcomes for youth, regardless of race or gender. Notably, although self-reported delinquency has been independently associated with negative consequences such as adult criminality (Lanctot et al., 2007), the link between child maltreatment and education, employment, and adult criminality remained significant even after accounting for self-reported delinquent behavior.

In an effort to further understand the impact of child maltreatment and juvenile arrest on long-term outcomes independently, youth with a history of maltreatment (and no juvenile arrest) were directly compared to youth with a history of juvenile arrest (and no maltreatment). The results revealed striking similarities in outcomes between these two groups. In fact, maltreatment only and juvenile arrest only youth did not differ in likelihood for any outcome except adult criminality, where juvenile arrest only youth were four times more likely to be arrested in adulthood. These findings suggest that when crossover youth and youth with no history of maltreatment or juvenile arrest are removed from the analyses, youth with a juvenile justice history or a child maltreatment history have similar outcomes in adulthood. These findings are consistent with Culhane et al. (2011), which found that youth who exited the juvenile probation system between the ages of 16 and 21 had similar rates of drug and alcohol treatment, public health care service use and public mental health care service use as compared to youth who exited the child welfare system between the ages of 16 and 21. Similar to the current study, youth exiting juvenile probation also had higher rates of adult criminal justice involvement as compared to child welfare involved youth. Culhane et al. is one of the only other studies to directly compare these two groups, and further research is clearly needed to better understand these findings.

Consequences for Crossover Youth

It was hypothesized that there would be a double jeopardy effect for crossover youth across these domains of functioning, with higher rates of psychiatric disorders and adult arrest, and lower rates of educational attainment and employment, as compared to arrested, maltreated and non-maltreated or arrested youth. The findings from the current study demonstrated partial support for this hypothesis in outcomes related to overall life functioning, as crossover youth

exhibited some of the worst outcomes in employment, educational attainment, and adult criminality. However, the assertion that crossover youth would be at higher risk for lifetime psychiatric disorders as compared to all other groups was not supported.

Though crossover youth were at greater risk for lifetime diagnoses of dysthymia, GAD, PTSD, and alcohol abuse/dependence compared to youth with no history of maltreatment or arrest, there were no differences between crossover youth and arrested youth on any psychiatric disorder. There were also very few differences between crossover youth and maltreated youth on psychiatric outcomes, and both of those results were impacted by self-reported delinquency. More specifically, crossover youth were no longer at greater risk than maltreated youth for alcohol abuse/dependence after accounting for self-reported delinquency, and the initial null finding for drug abuse/dependence became significant after self-reported delinquency was included. However, the difference in drug abuse/dependence was in the opposite direction: maltreated youth had a higher risk for drug abuse/dependence than crossover youth after accounting for self-reported delinquency. Although this finding is puzzling, it suggests that self-reported delinquency may be an important variable to explore when examining the relationship between maltreatment and drug abuse/dependence. Nevertheless, further research is necessary to better understand this result.

The failure to find more extensive differences in risk for psychiatric disorders between crossover youth and maltreated or arrested youth was surprising given the plethora of research on the negative consequences of juvenile justice involvement and child maltreatment independently. This finding is also in direct contrast with Culhane et al. (2011), which found that crossover youth had higher rates of mental health service use in adulthood compared to youth with a history of juvenile probation or child welfare involvement. However, the differences in findings

might be attributed to differences in sample composition and outcomes used in Culhane et al. versus the current study. For example, Culhane et al. used public mental health service use, as opposed to psychiatric diagnoses, as the outcome variable to represent mental health functioning. Crossover youth in that study were also individuals who exited the juvenile probation system or child welfare system between ages 16 and 21, whereas crossover youth in the current study were individuals with substantiated histories of child maltreatment prior to age 11 and an arrest prior to age 18. Consequently, the crossover youth in Culhane et al. represented a group of individuals with more severe involvement in the juvenile justice system than youth in the current study.

It is also important to note that even though there were few differences between crossover youth and arrested or maltreated youth in risk for psychiatric disorders in the current study, all of the groups had higher prevalence rates across most disorders compared to the prevalence rates found in community samples. For example, in one epidemiological study, the lifetime prevalence rate for PTSD among 18 to 29 year olds in the United States was 6.8% (Kessler, Chiu, Demler, & Walters, 2005), whereas lifetime rates of PTSD among crossover, maltreated, and arrested youth in the current study were 32.2%, 30.8%, and 28.7% respectively. From this perspective, it is clear that all of these groups of youth are highly vulnerable to lifetime mental health disorders, and that the impact of one adversity (i.e., juvenile arrest or maltreatment) is enough to elevate the risk for psychiatric disorders. However, when combined, there appears to be no increased risk for negative mental health consequences in adulthood beyond the impact of each adversity independently.

As expected, crossover youth were at a greater disadvantage with regard to unemployment, educational attainment, and adult criminality as compared to maltreated youth and youth with no history of maltreatment or arrest. However, crossover youth did not differ

from maltreated youth, or arrested youth, in likelihood for skilled employment. Although this finding was somewhat surprising, the limited variability in the skilled employment variable is one possible explanation for this unexpected result. This unexpected finding also suggests that although dual system involvement may place crossover youth at an overall disadvantage for finding a job as compared to maltreated youth, maltreatment alone is still a significant barrier to obtaining jobs with greater earning potential.

Notably, self-reported delinquency had little impact on the results for employment, education, and adult arrest outcomes for crossover youth versus other groups. This is further evidence of the detrimental impact of the juvenile justice system itself on maltreated youth, even at the initial stage of juvenile arrest. Furthermore, the increased risk for unemployment, adult arrest, and failure to meet educational milestones among crossover youth as compared to maltreated youth also suggests that unlike lifetime psychiatric disorders, there is a “double jeopardy” effect for these particular life outcomes for crossover youth. In other words, having a history of both adverse life events negatively impacts employment overall, educational attainment, and risk for adult criminality, above and beyond the implications of a single adversity. These findings also suggest that here, child maltreatment and juvenile arrest may fit within a cumulative risk model, which generally posits that an increase in the number of childhood risk factors is related to a greater number of detrimental outcomes (Kerr, Black, & Krishnakumar, 2000; Rutter, 1987). In one of the only studies to examine adult outcomes within the context of cumulative risk factors in childhood, Horan and Widom (2015) found that exposure to a greater number of childhood risk factors, including child abuse and neglect, was significantly associated with arrest in adulthood. Moreover, exposure to up to two risk factors was also associated with the completion of fewer years of school, with a leveling off effect for

educational attainment after exposure to more than two risk factors. Although the current study did not specifically use a cumulative risk model to examine adult outcomes, the current study findings, coupled with the findings from Horan and Widom, highlight the need for future studies to explore cumulative risk models within the context of maltreatment and juvenile arrest.

In the current study, crossover youth represented more than half of all youth arrested in adolescence, and one quarter of youth with histories of maltreatment. These findings are consistent with prevalence rates found in prior studies (King et al., 2011; Gover & Mackenzie, 2003). Moreover, the high percentage of crossover youth in the overall group of juvenile justice involved youth provides even further evidence of the high rate of maltreated youth in the juvenile justice system. This finding also highlights the importance of considering and implementing trauma-informed assessment and treatment at all levels of system involvement.

Although Black and Hispanic individuals represented 11.1% and 4.5% of the United States population in 1970 respectively (Gibson & Jung, 2002), Black and Hispanic youth represented 49.4% of all crossover youth in the current study. This finding illustrates the disproportionate representation of minority youth in crossover youth populations, and is consistent with prior studies finding disproportionate minority contact for youth who crossover from the child welfare to the juvenile justice system (Culhane et al., 2011; Herz & Ryan, 2008b; Marshall & Haight, 2014; Ryan et al., 2007). Moreover, although the findings from at least one prior study suggest that the child welfare system is largely responsible for the disproportionate representation of minority youth in crossover populations (Ryan et al., 2007), the similarities in racial/ethnic composition between crossover youth and arrested youth here suggest that at least in the current study, the juvenile justice system may instead be driving this disparity.

Here, crossover youth were also more likely to be male compared to maltreated youth and youth with no history of maltreatment or juvenile arrest, and crossover youth were also arrested at a significantly younger age and reported a greater number of delinquent acts than these two groups. The earlier age of first arrest, prior history of maltreatment, and higher rates of adult criminality and other negative outcomes that were characteristic of crossover youth in this study bear at least some resemblance to the theory of life-course persistent offending set forth by Moffitt (1993). However, the fact that crossover youth did not differ significantly from arrested youth on most outcomes, including age of first arrest, calls into question the applicability of this theory to this particular subset of youth.

Indeed, one of the more surprising findings from the current study was the absence of significant differences between arrested youth and crossover youth on most outcomes. For example, there were no differences between crossover youth and juvenile arrest youth on any demographic variables, age of first arrest, or self-reported delinquent behaviors. Although crossover youth had higher rates of Dysthymia and GAD compared to arrested youth, these differences were not statistically significant. The null findings for GAD and dysthymia could be explained by decreased statistical power, as there were very few arrested youth who were diagnosed with these disorders. However, decreased statistical power does not explain the null findings in the areas of education, type of employment and adult arrest, where the sample sizes for both groups were adequate. In fact, unemployment was the only variable where a statistically significant difference was found between crossover and juvenile arrest only groups, with crossover youth twice as likely to be unemployed compared to arrested youth.

The similarities between crossover and arrested youth were not consistent with those prior studies that compared crossover youth to arrested only youth (Culhane et al., 2011; King et

al., 2011). However, many of those studies were cross-sectional, which did not allow for long-term comparisons between these two groups. Additionally, even in the few prospective studies that have been conducted on crossover youth, mental health and psychosocial outcomes varied substantially from the outcomes used in the current study. For example, by using public mental health service use as the measure of mental health functioning, the results in Culhane et al. (2011) may be overestimating the existence of mental health problems among crossover youth compared to arrested youth. Indeed, crossover youth may have had more involvement with public mental health services because of their involvement in two systems, which may have increased the ability for referrals to be made, as well as their awareness of those services. Referrals to outside mental health services may also be more of a focus of the child welfare system as compared to the juvenile justice system, which might explain the increased use of services by crossover youth as compared to youth exiting juvenile probation in Culhane et al.

Although small sample sizes and decreased statistical power make it difficult to draw firm conclusions with regard to race and gender, a number of results are worth mentioning. First, there were no differences between crossover females and arrested females, even on psychosocial outcomes, and very few differences between crossover females and maltreated females. This is in contrast to the findings for crossover males, which largely mimicked the overall results for crossover youth. This suggests that the cumulative risk of both adversities has a more negative impact on males than on females. This outcome was also true for Whites and Blacks and Hispanics. More specifically, White crossover youth were rarely different from the other groups, whereas Black and Hispanic crossover youth were at a significant disadvantage compared to others on most psychosocial outcomes. Further research with larger samples of females and Whites should be conducted in an attempt to replicate these findings.

In sum, involvement in the juvenile justice system appears to have the most detrimental consequences for maltreated youth in the areas of employment, educational attainment, and adult criminality, but not necessarily mental health functioning. The long-term impact of cumulative adversity also appears to be the most salient for males and Blacks and Hispanics. Furthermore, the striking similarities between crossover and arrested youth after accounting for self-reported delinquency, especially when combined with the differences found between crossover and maltreated youth on psychosocial outcomes, strongly suggests that involvement in the juvenile justice system is driving negative outcomes for crossover youth.

Limitations and Future Directions

One of the greatest strengths of this study was the use of a longitudinal, prospective design, which allowed for a more reliable exploration of psychosocial and mental health outcomes of crossover youth, and other groups, in adulthood. This study also utilized official records of maltreatment and juvenile arrest, which made it possible to gain unique insight on the impact of juvenile justice system involvement for maltreated youth in adulthood. Furthermore, the availability of a group with no history of maltreatment or juvenile arrest, as well as the ability to use mutually exclusive groups of maltreated and arrested youth, provided the opportunity to examine the long-term consequences of maltreatment and juvenile justice involvement of crossover youth within the context of other, potentially less vulnerable youth.

In addition to its many strengths, the current study also had several limitations. First, although demographic variables and self-reported delinquency were accounted for in this study, other variables that were not controlled for, such as family history of mental health, history of mental health treatment, history of out-of-home placement, psychiatric diagnoses that preceded juvenile arrest, number and type of juvenile arrests, and subsequent involvement in deeper levels

of the juvenile justice system prior to adulthood, may also represent confounding factors. Second, given the high rate of comorbidity in mental health disorders among youth in the juvenile justice system (Abram, Teplin, McClelland, & Dulcan, 2003; Abram et al., 2015), the lack of comorbid diagnostic categories may have resulted in an incomplete picture of the magnitude of long-term psychiatric disorders among crossover youth. Third, although the use of lifetime psychiatric diagnoses allowed for the measurement of diagnoses over the course of development, the addition of current diagnoses and symptoms would provide another important perspective on the long-term psychiatric outcomes for crossover youth. Fourth, the current study did not distinguish between types of abuse when comparing crossover youth to other groups. Since varying psychiatric outcomes have been found by type of abuse in the child maltreatment literature (Widom et al., 2007; Widom et al., 2006), future studies should explore differences in outcomes for physically abused, sexually abused, or neglected youth in the juvenile justice system. Fifth, the use of juvenile arrest as the measure of juvenile justice system involvement may have underestimated the impact of the juvenile justice system on maltreated youth, as arrest is one of the lowest levels of system involvement. It is also difficult to ascertain whether or not arrested youth in this study actually penetrated deeper into the system, or whether there were other confounding factors (i.e., case dismissal, diversion, incarceration, or probation) that may have impacted the results. Finally, although this study is one of the first to provide information on long-term consequences for crossover youth by race and gender, small sample sizes limited the ability to draw reliable conclusions about race and gender differences.

Implications

As one of the few studies to explore long-term outcomes for maltreated youth in the juvenile justice system, the current study contributes significantly to the existing literature on

crossover youth. Through the use of a longitudinal, prospective design, this study provides a unique and more complete picture on how crossover youth fare beyond adolescence and into adulthood. Given the increase in attention being paid to this population at both the local and national levels, the findings from this study provide crucial information that can be used for treatment, dispositional planning, and further improvement in the services available to youth in both the juvenile justice and child welfare systems.

The findings from this study suggest that although crossover youth do not differ from maltreated youth or arrested youth in long-term consequences for a number of important psychiatric outcomes, crossover youth do manifest the consequences in what appears to be a “double jeopardy” effect in employment, education, and adult criminality as a result of their contact with the child welfare and juvenile justice systems. This is an indication that the needs of crossover youth are not being adequately met by either system with regard to these particular psychosocial outcomes. Moreover, the failure to achieve educational and employment milestones, as well as involvement with the adult criminal justice system, have all been associated with additional negative consequences, such as psychological distress, decreased earnings, and increased risk for perpetrating child maltreatment (Paul & Moser, 2009; Zielinski, 2009). In order to increase the likelihood that crossover youth will be able to meet important developmental milestones, both the child welfare and juvenile justice systems need to communicate and collaborate to provide more comprehensive services to this population. Specifically, both systems need to work together to expand family-based and other supports for crossover youth and increase opportunities for crossover youth to be diverted away from the juvenile justice system, whenever possible.

Given the similarities in consequences for crossover and arrested youth in the current study, as well as the negligible impact of self-reported delinquency on psychosocial outcomes, it also appears that the juvenile justice system is playing a significant role in the detrimental outcomes for crossover youth, even at the lowest level of system involvement. Consequently, in addition to focusing on increased diversion options for this population, more emphasis should be placed on expanding opportunities for crossover youth to engage in family-based, alternative-to-incarceration programs, regardless of whether they are in foster care or another dependency placement. Building additional family-based supports for crossover youth is also important because prior research has found that the lack of an available caregiver increases the likelihood that crossover youth will penetrate deeper into the juvenile justice system (Conger & Ross, 2001). Efforts should also be made to expand the availability of therapeutic foster homes and other family supports for crossover youth who are re-entering the community after serving time in a juvenile justice placement.

It is also notable that crossover youth in the current study were at higher risk for negative psychosocial outcomes even at the lowest level of involvement with the juvenile justice system (i.e., juvenile arrest). This finding suggests that both collaboration with police officers and increased opportunities for diversion of cases prior to arrest would be beneficial avenues for improving outcomes for youth with involvement in both systems. Moreover, to provide psychoeducation about the impact of trauma and encourage the use of more appropriate treatment for youth in the juvenile justice system, efforts are currently underway in some jurisdictions to provide trauma-informed education and training to juvenile justice professionals (Marrow, Knudsen, Olafson, & Bucher, 2012). The findings from this study suggest that it would be important to also include police officers in those efforts.

There were few differences between crossover youth and maltreated or arrested youth with regard to long-term psychiatric outcomes. Nevertheless, the lifetime prevalence rates for psychiatric disorders were still exceptionally high for all of these groups. Although the findings from the current study do not support the assertion that the mental health needs of crossover youth should be treated any differently than those of maltreated or arrested youth, these findings do provide strong evidence that the mental health needs of youth are not being adequately addressed in either system. As such, both systems need to be doing more to correctly identify, properly assess, and provide evidence-based treatment to youth. For crossover youth in particular, increased coordination between the juvenile justice and child welfare systems would ensure that no youth is missed and that all relevant information is available to ensure proper treatment. This is in line with efforts that are already underway to increase transparency and coordination between systems (Bilchik, 2010; Herz & Fontaine, 2013; Herz et al., 2012).

One of the most consistent findings in the literature on crossover youth is the disproportionate representation of minorities among crossover youth. The findings from the current study further highlight this disparity, even at the level of juvenile justice system involvement (i.e., juvenile arrest). The current results also suggest that racial and ethnic minority status may be an additional risk factor for negative psychosocial outcomes, above and beyond a history of child maltreatment and juvenile arrest. Consequently, crossover youth from minority groups may experience “triple jeopardy” when crossing from the child welfare to the juvenile justice system.

Clearly, more must be done to address the racial and ethnic disparities found among crossover youth populations, as well as within the juvenile justice system overall. Potential options for remedying these disparities include a continued and more expanded focus on

diversion programs, alternative to incarceration programs, and trainings for juvenile justice and child welfare professionals about the negative impact of dual system involvement on minority youth. Moreover, in a recent qualitative study examining the reasons behind racial disparities among crossover youth, Marshall and Haight (2014) found that misinterpreted communication styles, cultural bias in the evaluation of parenting, strained race relations, and resistance among professionals to confront those challenges in relations between races all contributed to racial disparity for youth in the juvenile justice and child welfare systems. Although more research is needed, these findings, combined with the findings from the current study and many others, suggest that increasing cultural competency among professionals in both systems, and working harder to incorporate families and improve relations between professionals and families, are important places to begin.

The findings from this work provide critical information about the needs of crossover youth, and suggest that those needs are both similar and different than non-crossover youth in the juvenile justice and child welfare systems. A growing number of states have implemented the Crossover Youth Practice Model in an effort to change the way that crossover youth are processed in the juvenile justice and child welfare systems (Center for Juvenile Justice Reform, 2015). The findings from this study can be used to further enhance this existing model by providing information that can be used to design even more specific and individualized treatment for crossover youth. This not only promotes the well-being of crossover youth, but also directly supports the public safety and rehabilitation goals of the juvenile justice system.

Table 1

Characteristics of Sample by Group

Characteristics	Crossover (<i>n</i> =180)	Arrested (<i>n</i> =91)	Maltreated (<i>n</i> =496)	Neither (<i>n</i> =428)	Significance
<u>Demographics</u>					
Race (%)					$\chi^2 (df = 3) = 17.02^{***}$
White	50.6 ^a	54.9 ^a	65.9 ^b	62.6 ^b	
Black and Hispanic	49.4 ^a	45.1 ^a	34.1 ^b	37.4 ^b	
Gender (%)					$\chi^2 (df = 3) = 55.12^{***}$
Male	67.8 ^a	75.8 ^a	43.5 ^b	48.1 ^b	
Female	32.2 ^a	24.2 ^a	56.5 ^b	51.9 ^b	
Age at first interview					
Mean (<i>SD</i>)	28.6 ^a (3.6)	28.7 ^a (3.5)	29.3 ^b (3.8)	29.5 ^b (4.0)	$F (3, 1191) = 2.98^*$
Age at first arrest ^a					
Mean (<i>SD</i>)	14.7 ^a (2.3)	15.0 ^a (2.2)	22.6 ^b (4.0)	23.1 ^b (4.6)	$F (3, 582) = 257.02^{***}$
<u>Covariate</u>					
Self-reported delinquency					
Mean (<i>SD</i>)	5.0 ^a (3.6)	4.7 ^a (3.8)	3.0 ^b (3.3)	2.6 ^b (2.8)	$F (3, 1191) = 27.86^{***}$

Notes: Percentages with different subscripts indicate significant pairwise comparisons after Bonferroni correction ($p < .008$). Means with different subscripts indicate significant post hoc results after Bonferroni correction ($p < .01$). Comparisons are to crossover group. * $p < .05$. ** $p \leq .01$. *** $p < .001$.

^a Excludes arrests for status offenses

Table 2

Lifetime Psychiatric Disorders for Juvenile Arrest versus No Juvenile Arrest Groups

Group	Major Depressive Disorder			Dysthymia			Generalized Anxiety Disorder			Posttraumatic Stress Disorder			Alcohol Abuse/Dependence			Drug Abuse/Dependence		
	%	AOR ^a AOR ^b	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI AOR
<u>Overall</u>																		
No arrest (n=924)	23.1			11.3			6.2			25.7			50.2			32.9		
Arrest (n=271)	23.6	1.27	[0.91, 1.77]	15.9	1.76**	[1.18, 2.64]	7.7	1.42	[0.83, 2.44]	29.4	1.64**	[1.19, 2.27]	62.7	1.48**	[1.10, 2.00]	38.7	1.23	[0.92, 1.66]
		1.02	[0.72, 1.45]		1.50	[0.99, 2.27]		1.31	[0.75, 2.27]		1.32	[0.94, 1.85]		0.99	[0.71, 1.39]		0.71	[0.49, 1.01]
<u>Male</u>																		
No arrest (n=422)	17.1			8.4			5.7			15.6			64.7			40.9		
Arrest (n=191)	19.9	1.22	[0.78, 1.90]	13.6	1.76*	[1.01, 3.05]	7.9	1.37	[0.69, 2.73]	22.6	1.55†	[1.00, 2.41]	69.6	1.45	[0.99, 2.13]	43.5	1.34	[0.93, 1.92]
		1.03	[0.65, 1.63]		1.51	[0.85, 2.68]		1.29	[0.64, 2.62]		1.24	[0.78, 1.97]		0.94	[0.61, 1.44]		0.80	[0.53, 1.23]
<u>Female</u>																		
No arrest (n=502)	28.1			13.7			6.6			34.1			38.0			26.2		
Arrest (n=80)	32.5	1.28	[0.77, 2.14]	21.3	1.73	[0.95, 3.15]	7.5	1.31	[0.52, 3.28]	45.6	1.69*	[1.04, 2.75]	46.3	1.57	[0.96, 2.56]	27.5	1.13	[0.66, 1.93]
		0.98	[0.57, 1.69]		1.47	[0.80, 2.72]		1.17	[0.46, 2.96]		1.36	[0.82, 2.26]		1.09	[0.63, 1.87]		0.57	[0.30, 1.10]
<u>White</u>																		
No arrest (n=595)	24.7			11.3			6.7			26.7			57.9			37.0		
Arrest (n=139)	23.0	1.08	[0.69, 1.70]	13.7	1.51	[0.86, 2.66]	5.8	1.02	[0.46, 2.27]	28.1	1.50	[0.96, 2.33]	69.8	1.33	[0.88, 2.01]	48.2	1.40	[0.95, 2.05]
		0.88	[0.55, 1.40]		1.28	[0.72, 2.31]		0.92	[0.40, 2.09]		1.19	[0.75, 1.88]		0.85	[0.53, 1.35]		0.83	[0.52, 1.32]
<u>Black and Hispanic</u>																		
No arrest (n=329)	20.1			11.2			5.2			23.9			36.2			25.4		
Arrest (n=132)	24.2	1.53	[0.92, 2.54]	18.2	2.07**	[1.15, 3.74]	9.8	1.86	[0.85, 4.10]	30.8	1.75*	[1.08, 2.84]	55.3	1.67*	[1.08, 2.59]	28.8	1.04	[0.65, 1.67]
		1.23	[0.72, 2.10]		1.74	[0.94, 3.21]		1.73	[0.77, 3.88]		1.41	[0.85, 2.34]		1.20	[0.74, 1.94]		0.59	[0.33, 1.04]

Notes: AOR = adjusted odds ratio; CI = confidence interval. Numbers in cells vary slightly due to missing information.

* $p < .05$. ** $p \leq .01$. *** $p < .001$. † $p = .05$.

^a Adjusted for race, gender, and age at first interview.

^b Adjusted for race, gender, age at first interview, and self-reported delinquency.

Table 3

Education, Employment and Adult Arrest Outcomes for Juvenile Arrest versus No Juvenile Arrest Groups

Group	Unemployed ^a			Unskilled Employment ^b			Adult Arrest			High School Graduation		
	%	AOR ^c AOR ^d	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI
Overall												
No arrest (n=924)	10.0			52.4			34.1			61.5		
Arrest (n=271)	23.2	2.78*** 2.52***	[1.88, 4.11] [1.69, 3.76]	63.5	1.50** 1.50**	[1.12, 2.01] [1.12, 2.02]	73.4	4.23*** 3.73***	[3.09, 5.80] [2.71, 5.15]	39.9	0.41*** 0.45***	[0.31, 0.54] [0.34, 0.61]
Male												
No arrest	13.3			52.5			46.4			61.6		
Arrest (n=191)	26.7	2.74*** 2.47***	[1.74, 4.31] [1.56, 3.93]	66.8	1.67** 1.69**	[1.15, 2.40] [1.16, 2.47]	79.6	4.21*** 3.57***	[2.79, 6.33] [2.35, 5.42]	36.6	0.35*** 0.39***	[0.24, 0.50] [0.27, 0.57]
Female												
No arrest (n=502)	7.2			52.4			23.7			61.4		
Arrest (n=80)	15.0	2.92** 2.69*	[1.38, 6.17] [1.26, 5.72]	55.7	1.17 1.14	[0.72, 1.89] [0.70, 1.86]	58.8	4.45*** 4.13***	[2.70, 7.33] [2.49, 6.83]	47.5	0.54* 0.59*	[0.33, 0.87] [0.36, 0.96]
White												
No arrest (n=595)	9.2			52.3			30.3			57.9		
Arrest (n=139)	17.3	2.02* 1.92*	[1.16, 3.50] [1.09, 3.38]	57.2	1.26 1.25	[0.86, 1.85] [0.85, 1.85]	61.9	3.15*** 2.74***	[2.12, 4.69] [1.82, 4.12]	38.8	0.46*** 0.51**	[0.31, 0.67] [0.35, 0.76]
Black and Hispanic												
No arrest (n=329)	11.2			52.7			41.0			67.8		
Arrest (n=132)	29.5	3.97*** 3.45***	[2.24, 7.01] [1.93, 6.18]	70.3	1.85** 1.85**	[1.17, 2.91] [1.17, 2.94]	85.6	6.91*** 6.18***	[4.00, 11.94] [3.55, 10.76]	40.9	0.35*** 0.40***	[0.23, 0.55] [0.25, 0.62]

Notes: AOR = adjusted odds ratio; CI = confidence interval. Numbers in cells vary slightly due to missing information.

* $p < .05$. ** $p \leq .01$. *** $p < .001$.

^aAs compared to employed and other.

^bAs compared to skilled employment.

^cAdjusted for race, gender, and age at first interview.

^dAdjusted for race, gender, age at first interview, and self-reported delinquency.

Table 4

Lifetime Psychiatric Disorders for Maltreated versus Non-Maltreated Groups

Group	Major Depressive Disorder			Dysthymia			Generalized Anxiety Disorder			Posttraumatic Stress Disorder			Alcohol Abuse/Dependence			Drug Abuse/Dependence		
	%	AOR ^a AOR ^b	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI
Overall																		
No CAN (n=519)	20.8			8.1			4.6			20.4			51.1			33.7		
CAN (n=676)	25.0	1.26	[0.95, 1.66]	15.6	2.14***	[1.46, 3.13]	8.0	1.87*	[1.13, 3.08]	31.2	1.77***	[1.34, 2.32]	54.5	1.21	[0.95, 1.54]	34.7	1.08	[0.85, 1.39]
		1.15	[0.86, 1.52]		1.98**	[1.34, 2.91]		1.80*	[1.09, 2.98]		1.61**	[1.21, 2.13]		1.03	[0.79, 1.34]		0.87	[0.65, 1.15]
Male																		
No CAN (n=275)	16.7			5.1			3.6			14.2			67.3			42.5		
CAN (n=338)	19.0	1.17	[0.77, 1.77]	14.0	3.07***	[1.65, 5.73]	8.6	2.52*	[1.20, 5.29]	20.7	1.59*	[1.03, 2.44]	65.4	0.92	[0.66, 1.30]	40.9	0.95	[0.68, 1.32]
		1.09	[0.71, 1.66]		2.90**	[1.55, 5.42]		2.47*	[1.18, 5.20]		1.45	[0.93, 2.24]		0.77	[0.53, 1.13]		0.76	[0.52, 1.10]
Female																		
No CAN (n=244)	25.4			11.5			5.7			27.5			32.8			23.6		
CAN (n=338)	31.1	1.34	[0.93, 1.95]	17.2	1.66*	[1.02, 2.71]	7.4	1.42	[0.71, 2.81]	41.7	1.89***	[1.33, 2.71]	43.8	1.59*	[1.12, 2.25]	28.4	1.28	[0.88, 1.88]
		1.14	[0.77, 1.68]		1.46	[0.89, 2.41]		1.30	[0.65, 2.61]		1.69**	[1.16, 2.44]		1.32	[0.90, 1.93]		0.91	[0.58, 1.43]
White																		
No CAN (n=318)	20.1			8.8			4.7			18.6			59.1			39.9		
CAN (n=416)	27.7	1.50*	[1.06, 2.14]	14.0	1.72*	[1.06, 2.78]	7.9	1.81	[0.96, 3.42]	33.4	2.23***	[1.56, 3.20]	61.0	1.13	[0.83, 1.54]	38.6	0.98	[0.72, 1.33]
		1.40	[0.97, 2.00]		1.61	[0.99, 2.62]		1.76	[0.93, 3.33]		2.07***	[1.43, 2.99]		0.94	[0.66, 1.32]		0.75	[0.53, 1.07]
Black and Hispanic																		
No CAN (n=199)	21.9			7.0			4.5			23.4			38.3			23.6		
CAN (n=260)	20.8	0.93	[0.59, 1.46]	18.1	2.99**	[1.59, 5.62]	8.1	1.95	[0.87, 4.39]	27.7	1.24	[0.81, 1.91]	44.2	1.35	[0.91, 2.00]	28.5	1.33	[0.87, 2.04]
		0.81	[0.51, 1.29]		2.71**	[1.43, 5.13]		1.86	[0.82, 4.21]		1.10	[0.70, 1.71]		1.19	[0.78, 1.82]		1.11	[0.69, 1.78]

Notes: CAN = child abuse and neglect; AOR = adjusted odds ratio; CI = confidence interval. Numbers in cells vary slightly due to missing information.

* $p < .05$. ** $p < .01$. *** $p < .001$.

^a Adjusted for race, gender, and age at first interview.

^b Adjusted for race, gender, age at first interview, and self-reported delinquency.

Table 5

Education, Employment and Adult Arrest Outcomes for Maltreated versus Non-Maltreated Groups

Group	Unemployed ^a			Unskilled Employment ^b			Adult Arrest			High School Graduation		
	%	AOR ^c AOR ^d	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI
Overall												
No CAN (<i>n</i> = 519)	8.7			45.2			36.0			67.6		
CAN (<i>n</i> = 676)	54.9	2.56*** 2.45***	[1.75, 3.74] [1.67, 3.60]	62.6	2.05*** 2.05***	[1.61, 2.59] [1.61, 2.60]	48.4	1.85*** 1.75***	[1.44, 2.38] [1.35, 2.26]	48.0	0.44*** 0.46***	[0.34, 0.56] [0.36, 0.58]
Male												
No CAN (<i>n</i> =275)	11.3			47.1			51.3			64.7		
CAN (<i>n</i> =338)	22.5	2.79*** 2.70***	[1.75, 4.46] [1.69, 4.33]	65.2	2.12*** 2.12***	[1.52, 2.95] [1.52, 2.96]	61.2	1.52* 1.43*	[1.09, 2.12] [1.02, 2.01]	44.8	0.44*** 0.46***	[0.32, 0.61] [0.33, 0.64]
Female												
No CAN (<i>n</i> =244)	5.7			43.0			18.9			70.9		
CAN (<i>n</i> =338)	10.1	2.33* 2.18*	[1.20, 4.51] [1.12, 4.24]	59.9	1.99*** 1.98***	[1.42, 2.80] [1.41, 2.79]	35.5	2.43*** 2.28***	[1.63, 3.61] [1.53, 3.41]	51.2	0.43*** 0.46***	[0.30, 0.62] [0.32, 0.65]
White												
No CAN (<i>n</i> =318)	6.3			43.8			30.2			64.8		
CAN (<i>n</i> =416)	14.2	3.09*** 3.03***	[1.80, 5.30] [1.76, 5.20]	60.5	1.96*** 1.97***	[1.46, 2.65] [1.46, 2.66]	40.9	1.74** 1.64**	[1.26, 2.41] [1.18, 2.28]	46.2	0.46*** 0.48***	[0.34, 0.63] [0.36, 0.66]
Black and Hispanic												
No CAN (<i>n</i> =201)	12.4			47.4			45.3			72.1		
CAN (<i>n</i> =260)	19.6	2.11** 1.99*	[1.22, 3.63] [1.14, 3.46]	66.0	2.19*** 2.18***	[1.48, 3.24] [1.47, 3.24]	60.4	2.04*** 1.92**	[1.37, 3.04] [1.27, 2.88]	50.8	0.39*** 0.41***	[0.26, 0.59] [0.28, 0.62]

Notes: CAN = child abuse and neglect; AOR = adjusted odds ratio; CI = confidence interval. Numbers in cells vary slightly due to missing information.

* $p < .05$. ** $p \leq .01$. *** $p < .001$.

^aAs compared to employed.

^bAs compared to skilled employment.

^cAdjusted for race, gender, and age at first interview.

^dAdjusted for race, gender, age at first interview, and self-reported delinquency.

Table 6

Lifetime Psychiatric Disorders for Maltreated Only versus Juvenile Arrest Only Groups

Group	Major Depressive Disorder			Dysthymia			Generalized Anxiety Disorder			Posttraumatic Stress Disorder			Alcohol Abuse/Dependence			Drug Abuse/Dependence		
	%	AOR ^a AOR ^b	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI
Overall																		
CAN (n=495)	25.7			14.8			7.3			32.2			51.1			33.9		
Arrest (n=91)	24.2	1.23	[0.71, 2.12]	12.1	0.96	[0.47, 1.94]	3.3	0.52	[0.15, 1.78]	30.8	1.44	[0.85, 2.42]	60.4	1.29	0.79, 2.11]	42.9	1.35	[0.84, 2.19]
		1.04	[0.59, 1.85]		0.86	[0.42, 1.76]		0.50	[0.15, 1.73]		1.27	[0.74, 2.17]		0.95	[0.55, 1.64]		0.92	[0.51, 1.66]
Male																		
CAN (n=216)	18.6			12.2			6.9			19.8			62.0			40.5		
Arrest (n=69)	20.3	1.10	[0.55, 2.18]	7.2	0.53	[0.19, 1.47]	1.4	0.21	[0.03, 1.60]	23.2	1.19	[0.62, 2.31]	66.7	1.41	[0.78, 2.55]	46.4	1.43	[0.82, 2.52]
		0.88	[0.43, 1.81]		0.46	[0.16, 1.28]		0.21	[0.03,1 .63]		1.00	[0.51, 1.99]		0.98	[0.51, 1.89]		0.94	[0.48, 1.86]
Female																		
CAN (n=280)	31.1			16.8			7.5			41.6			42.9			28.9		
Arrest (n=22)	36.4	1.40	[0.56, 3.51]	27.3	1.91	[0.69, 5.25]	9.1	1.50	[0.32, 7.13]	54.5	1.94	[0.80, 4.74]	40.9	1.12	[0.45, 2.79]	31.8	1.26	[0.49, 3.23]
		1.34	[0.52, 3.46]		1.89	[0.68, 5.25]		1.49	[0.21, 7.06]		1.89	[0.76, 4.69]		1.00	[0.37, 2.64]		1.07	[0.35, 3.27]
White																		
CAN (n=327)	28.2			13.9			8.3			34.3			58.6			36.8		
Arrest (n=50)	18.0	0.74	[0.33, 1.62]	12.0	1.12	[0.43, 2.89]	4.0	0.57	[0.13, 2.58]	24.0	1.01	[0.48, 2.13]	70.0	1.30	[0.67, 2.53]	54.0	1.76	[0.95, 3.28]
		0.63	[0.28, 1.42]		1.05	[0.40, 2.74]		0.53	[0.12, 2.43]		0.90	[0.42, 1.92]		1.02	[0.48, 2.15]		1.44	[0.67, 3.12]
Black and Hispanic																		
CAN (n=169)	20.7			16.6			5.3			28.1			36.7			28.4		
Arrest (n=41)	31.7	2.28*	[1.01, 5.12]	12.2	0.78	[0.27, 2.24]	2.4	0.44	[0.05, 3.78]	39.0	2.00	[0.94, 4.27]	48.8	1.29	[0.62, 2.67]	29.3	0.91	[0.41, 2.00]
		1.99	[0.83, 4.78]		0.63	[0.20, 1.93]		0.46	[0.05, 3.93]		1.68	[0.74, 3.80]		0.87	[0.38, 1.97]		0.49	[0.18, 1.30]

Notes: CAN = child abuse and neglect; AOR = adjusted odds ratio; CI = confidence interval. Numbers in cells vary slightly due to missing information.

* $p < .05$. ** $p \leq .01$. *** $p < .001$.

^a Adjusted for race, gender, and age at first interview.

^b Adjusted for race, gender, age at first interview, and self-reported delinquency.

Table 7

Education, Employment and Adult Arrest Outcomes for Maltreated Only versus Juvenile Arrest Only Groups

Group	Unemployed ^a			Unskilled Employment ^b			Adult Arrest			High School Graduation		
	%	AOR ^c AOR ^d	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI
Overall												
CAN (<i>n</i> = 493)	12.9			61.3			38.7			51.5		
Arrested (<i>n</i> = 91)	18.7	1.12 1.07	[0.60, 2.10] [0.57, 2.03]	58.9	0.91 0.92	[0.57, 1.46] [0.57, 1.48]	70.3	2.73*** 2.52***	[1.64, 4.54] [1.50, 4.23]	42.9	0.69 0.76	[0.43, 1.11] [0.47, 1.23]
Male												
CAN (<i>n</i> = 216)	18.1			60.8			49.5			50.7		
Arrested (<i>n</i> = 69)	20.3	1.07 1.02	[0.53, 2.17] [0.50, 2.09]	56.5	0.75 0.76	[0.43, 1.32] [0.43, 1.35]	75.4	2.94** 2.64**	[1.58, 5.47] [1.40, 4.97]	40.6	0.65 0.72	[0.37, 1.14] [0.41, 1.27]
Female												
CAN (<i>n</i> = 280)	8.9			61.7			30.4			52.1		
Arrested (<i>n</i> = 22)	13.6	1.37 1.36	[0.36, 5.23] [0.35, 5.20]	66.7	1.35 1.35	[0.52, 3.50] [0.53, 3.48]	54.5	2.45 2.41	[1.00, 6.02] [0.98, 5.95]	50.0	0.82 0.84	[0.34, 1.98] [0.35, 2.06]
White												
CAN (<i>n</i> =327)	12.5			61.2			34.3			48.1		
Arrested (<i>n</i> =50)	12.0	0.61 0.62	[0.24, 1.59] [0.24, 1.61]	56.0	0.92 0.91	[0.50, 1.72] [0.48, 1.69]	56.0	1.81 1.66	[0.97, 3.40] [0.88, 3.16]	38.0	0.65 0.71	[0.35, 1.22] [0.37, 1.35]
Black and Hispanic												
CAN (<i>n</i> =169)	13.6			61.6			47.3			58.0		
Arrested (<i>n</i> =41)	26.8	2.24 1.97	[0.91, 5.55] [0.78, 4.98]	62.5	0.84 0.92	[0.40, 1.79] [0.43, 1.97]	87.8	6.28*** 5.83**	[2.30, 17.14] [2.11, 16.06]	48.8	0.77 0.84	[0.38, 1.57] [0.41, 1.74]

Notes: CAN = child abuse and neglect; AOR = adjusted odds ratio; CI = confidence interval. Numbers in cells vary slightly due to missing information.

* $p < .05$. ** $p \leq .01$. *** $p < .001$.

^aAs compared to employed.

^bAs compared to skilled employment.

^cAdjusted for race, gender, and age at first interview.

^dAdjusted for race, gender, age at first interview, and self-reported delinquency.

Table 8

Lifetime Psychiatric Disorders for Crossover versus Other Groups

Group	Major Depressive Disorder			Dysthymia			Generalized Anxiety Disorder			Posttraumatic Stress Disorder			Alcohol Abuse/Dependence			Drug Abuse/Dependence		
	%	AOR ^a AOR ^b	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI
Crossover (n=180)	23.3			17.8			10.0			28.7			63.9			36.7		
Arrested (n=91)	24.2	1.10	[0.60, 1.99]	12.1	0.66	[0.31, 1.38]	3.3	0.30	[0.09, 1.05]	30.8	1.21	[0.69, 2.13]	60.4	0.74	[0.43, 1.29]	42.9	1.19	[0.70, 2.01]
		1.20	[0.65, 2.21]		0.69	[0.33, 1.47]		0.31	[0.09, 1.07]		1.35	[0.75, 2.41]		0.76	[0.41, 1.39]		1.56	[0.83, 2.90]
CAN (n=496)	25.7	0.93	[0.61, 1.40]	14.8	0.69	[0.43, 1.11]	7.3	0.64	[0.35, 1.19]	32.2	0.89	[0.60, 1.32]	51.1	0.65*	[0.44, 0.94]	33.9	0.91	[0.63, 1.32]
		1.14	[0.74, 1.75]		0.79	[0.49, 1.29]		0.69	[0.37, 1.28]		1.11	[0.73, 1.67]		0.90	[0.59, 1.37]		1.63*	[1.04, 2.55]
Neither (n=428)	20.1	0.69	[0.45, 1.06]	7.2	0.31***	[0.18, 0.53]	4.9	0.41**	[0.21, 0.80]	18.2	0.42***	[0.27, 0.65]	49.1	0.57**	[0.39, 0.84]	31.7	0.80	[0.55, 1.17]
		0.92	[0.58, 1.44]		0.37**	[0.21, 0.65]		0.45*	[0.22, 0.89]		0.56*	[0.36, 0.88]		0.93	[0.61, 1.42]		1.69*	[1.07, 2.67]

Notes: CAN = child abuse and neglect; AOR = adjusted odds ratio; CI = confidence interval. Numbers in cells vary slightly due to missing information.

* $p < .05$. ** $p \leq .01$. *** $p < .001$.

^a Adjusted for race, gender, and age at first interview.

^b Adjusted for race, gender, age at first interview, and self-reported delinquency.

Table 9

Lifetime Psychiatric Disorders for Crossover versus Other Groups by Gender

Group	Major Depressive Disorder			Dysthymia			Generalized Anxiety Disorder			Posttraumatic Stress Disorder			Alcohol Abuse/Dependence			Drug Abuse/Dependence		
	%	AOR ^a AOR ^b	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI
Male																		
Crossover (n=122)	19.7			17.2			11.5			22.3			71.3			41.8		
Arrested (n=69)	20.3	1.03 1.10	[0.49, 2.16] [0.52, 2.32]	7.2	0.38 0.39	[0.13, 1.06] [0.14, 1.10]	1.4	0.12* 0.12*	[0.01, 0.92] [0.01, 0.93]	23.2	1.08 1.17	[0.53, 2.19] [0.57, 2.42]	66.7	0.72 0.70	[0.38, 1.38] [0.34, 1.45]	46.4	1.09 1.34	[0.59, 2.01] [0.67, 2.69]
Maltreated (n=216)	18.6	0.92 1.09	[0.52, 1.63] [0.60, 1.97]	12.2	0.66 0.75	[0.35, 1.26] [0.39, 1.46]	6.9	0.61 0.63	[0.27, 1.34] [0.28, 1.42]	19.8	0.90 1.13	[0.52, 1.58] [0.63, 2.02]	62.0	0.52* 0.73	[0.32, 0.87] [0.42, 1.29]	40.5	0.74 1.24	[0.46, 1.19] [0.71, 2.15]
Neither (n=206)	15.5	0.74 0.92	[0.41, 1.34] [0.50, 1.70]	4.4	0.21*** 0.25**	[0.09, 0.49] [0.11, 0.59]	4.4	0.36* 0.38*	[0.15, 0.86] [0.15, 0.94]	11.2	0.45* 0.59	[0.24, 0.83] [0.31, 1.13]	67.5	0.71 1.18	[0.43, 1.17] [0.67, 2.08]	41.3	0.80 1.58	[0.50, 1.29] [0.91, 2.75]
Female																		
Crossover (n=58)	31.0			19.0			6.9			42.1			48.3			25.9		
Arrested (n=22)	36.4	1.33 1.65	[0.47, 3.75] [0.55, 4.90]	27.3	1.61 1.86	[0.51, 5.12] [0.57, 6.02]	9.1	1.44 1.58	[0.24, 8.75] [0.26, 9.66]	54.5	1.75 2.14	[0.65, 4.75] [0.76, 6.03]	40.9	0.82 1.04	[0.29, 2.26] [0.34, 3.12]	31.8	1.43 2.63	[0.48, 4.21] [1.07, 5.29]
Maltreated (n=280)	31.1	0.98 1.29	[0.53, 1.81] [0.67, 2.49]	16.8	0.86 1.00	[0.41, 1.79] [0.47, 2.13]	7.5	1.01 1.12	[0.33, 3.12] [0.36, 3.48]	41.6	0.95 1.21	[0.53, 1.70] [0.66, 2.23]	42.9	0.74 1.06	[0.41, 1.32] [0.56, 2.01]	28.9	1.12 2.38*	[0.59, 2.14] [1.07, 5.29]
Neither (n=222)	24.3	0.69 1.03	[0.36, 1.30] [0.52, 2.05]	9.9	0.45* 0.58	[0.20, 0.99] [0.26, 1.32]	5.4	0.66 0.78	[0.20, 2.16] [0.23, 2.62]	24.8	0.44** 0.60	[0.24, 0.80] [0.32, 1.15]	32.0	0.46* 0.77	[0.25, 0.85] [0.40, 1.50]	22.7	0.81 2.21	[0.41, 1.59] [0.97, 5.08]

Notes: AOR = adjusted odds ratio; CI = confidence interval. Numbers in cells vary slightly due to missing information.

* $p < .05$. ** $p \leq .01$. *** $p < .001$.

^a Adjusted for race, gender, and age at first interview.

^b Adjusted for race, gender, age at first interview, and self-reported delinquency.

Table 10

Lifetime Psychiatric Disorders for Crossover versus Other Groups by Race

Group	Major Depressive Disorder			Dysthymia			Generalized Anxiety Disorder			Posttraumatic Stress Disorder			Alcohol Abuse/Dependence			Drug Abuse/Dependence		
	%	AOR ^a AOR ^b	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI
<u>White</u>																		
Crossover (n=89)	25.8			14.6			6.7			30.3			69.7			44.9		
Arrested (n=50)	18.0	0.70 0.75	[0.29, 1.69] [0.31, 1.82]	12.0	0.85 0.89	[0.30, 2.43] [0.31, 2.57]	4.0	0.58 0.60	[0.11, 3.05] [0.11, 3.13]	24.0	0.90 0.97	[0.39, 2.04] [0.42, 2.26]	70.0	0.85 0.98	[0.39, 1.85] [0.41, 2.37]	54.0	1.27 1.79	[0.63, 2.56] [0.76, 4.23]
Maltreated (n=327)	28.2	0.98 1.20	[0.57, 1.69] [0.68, 2.10]	13.9	0.80 0.92	[0.40, 1.58] [0.46, 1.85]	8.3	1.06 1.15	[0.42, 2.69] [0.45, 2.98]	34.3	1.20 0.93 1.16	[0.54, 1.59] [0.67, 2.02]	58.6	0.74 1.13	[0.44, 1.25] [0.63, 2.03]	36.8	0.78 1.36	[0.48, 1.26] [0.75, 2.45]
Neither (n=268)	20.5	0.65 0.84	[0.37, 1.15] [0.47, 1.53]	8.2	0.44* 0.53	[0.21, 0.92] [0.24, 1.14]	4.9	0.58 0.65	[0.21, 1.59] [0.23, 1.83]	17.5	0.37** 0.48*	[0.20, 0.66] [0.26, 0.89]	57.1	0.68 1.22	[0.40, 1.15] [0.67, 2.21]	37.3	0.78 1.68	[0.47, 1.27] [0.91, 3.07]
<u>Black and Hispanic</u>																		
Crossover (n=91)	20.9			20.9			13.2			27.0			58.2			28.6		
Arrested (n=41)	31.7	1.76 2.00	[0.76, 4.07] [0.84, 4.74]	12.2	0.52 0.56	[0.18, 1.53] [0.19, 1.65]	2.4	0.17 0.17	[0.02, 1.35] [0.02, 1.38]	39.0	1.72 1.95	[0.78, 3.80] [0.86, 4.43]	48.8	0.69 0.64	[0.32, 1.48] [0.28, 1.47]	29.3	1.06 1.25	[0.47, 2.41] [0.49, 3.20]
Maltreated (n=169)	20.7	0.81 1.01	[0.42, 1.56] [0.53, 2.15]	16.6	0.64 0.74	[0.32, 1.27] [0.37, 1.51]	5.3	0.42 0.44	[0.16, 1.08] [0.17, 1.15]	28.1	0.84 1.05	[0.46, 1.54] [0.56, 1.20]	36.7	0.58+ 0.74	[0.33, 1.00] [0.41, 1.35]	28.4	1.20 2.12*	[0.67, 2.17] [1.05, 4.27]
Neither (n=160)	19.4	0.77 1.07	[0.40, 1.50] [0.53, 2.15]	5.6	0.19*** 0.24**	[0.08, 0.46] [0.10, 0.59]	5.0	0.36* 0.40	[0.14, 0.95] [0.15, 1.06]	19.4	0.54 0.74	[0.29, 1.02] [0.38, 1.45]	35.6	0.49* 0.70	[0.28, 0.84] [0.39, 1.29]	21.9	0.79 1.55	[0.43, 1.45] [0.76, 3.18]

Notes: AOR = adjusted odds ratio; CI = confidence interval. Numbers in cells vary slightly due to missing information.

* $p < .05$. ** $p \leq .01$. *** $p < .001$.

^a Adjusted for race, gender, and age at first interview.

^b Adjusted for race, gender, age at first interview, and self-reported delinquency.

Table 11

Education, Employment and Adult Arrest Outcomes for Crossover versus Other Groups

Group	Unemployed ^a			Unskilled Employment ^b			Adult Arrest ^c			High School Graduation		
	%	AOR ^d AOR ^e	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI
Crossover	25.6			65.9			75.0			38.3		
Arrested	18.7	2.15* 2.15*	[1.10, 4.18] [1.10, 4.21]	58.9	1.36 1.36	[0.80, 2.29] [0.81, 2.30]	70.3	1.39 1.35	[0.78, 2.50] [0.74, 2.45]	42.9	1.24 1.20	[0.74, 2.07] [0.72, 2.02]
Maltreated	12.9	2.51*** 2.33**	[1.56, 4.03] [1.44, 3.77]	61.3	1.14 1.16	[0.79, 1.65] [0.80, 1.68]	38.7	3.66*** 3.27***	[2.45, 5.47] [2.18, 4.93]	51.5	1.75** 1.59*	[1.22, 2.50] [1.10, 2.29]
Neither	6.5	6.36*** 5.76***	[3.68, 10.97] [1.10, 4.21]	42.2	2.51*** 2.56***	[1.73, 3.64] [1.75, 3.73]	28.7	6.51*** 5.56***	[4.29, 9.87] [3.64, 8.49]	72.9	4.41*** 3.88***	[3.03, 6.42] [2.65, 5.70]

Notes: AOR = adjusted odds ratio; CI = confidence interval. Numbers in cells vary slightly due to missing information.

* $p < .05$. ** $p \leq .01$. *** $p < .001$.

^aCoded as 0 for unemployed and 1 for employed.

^bCoded as 0 for unskilled employment and 1 for skilled employment.

^cCoded as 0 for arrest and 1 for no arrest.

^dAdjusted for race, gender, and age at first interview.

^eAdjusted for race, gender, age at first interview, and self-reported delinquency.

LONG-TERM FOLLOW-UP OF CROSSOVER YOUTH

Table 12

Education, Employment and Adult Arrest Outcomes for Crossover versus Other Groups by Gender

Group	Unemployed ^a			Unskilled Employment ^b			Adult Arrest ^c			High School Graduation		
	%	AOR ^d AOR ^e	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI
<u>Male</u>												
Crossover	30.3			72.9			82.0			34.4		
Arrested	20.3	2.21* 2.22*	[1.04, 4.68] [1.04, 4.73]	56.5	1.97* 1.98*	[1.05, 3.70] [1.05, 3.73]	75.4	1.38 1.32	[0.67, 2.85] [0.63, 2.76]	40.6	1.33 1.30	[0.72, 2.45] [0.70, 2.40]
Maltreated	18.1	2.43** 2.21**	[1.37, 4.28] [1.24, 3.94]	60.8	1.52 1.56	[0.92, 2.50] [0.94, 2.59]	49.5	4.08*** 3.48***	[2.37, 7.04] [2.00, 6.07]	50.7	2.05** 1.84*	[1.28, 3.28] [1.14, 2.97]
Neither	8.3	6.93*** 6.26***	[3.56, 13.48] [3.19, 12.27]	43.9	3.14*** 3.26***	[1.91, 5.15] [1.96, 5.42]	43.2	5.63*** 4.59***	[3.25, 9.74] [2.63, 8.04]	72.8	5.28*** 4.62***	[3.23, 8.62] [2.80, 7.63]
<u>Female</u>												
Crossover	15.5			51.7			60.3			46.6		
Arrested	13.6	1.81 1.77	[0.41, 7.98] [0.40, 7.84]	66.7	0.52 0.52	[0.18, 1.49] [0.18, 1.49]	54.5	1.41 1.35	[0.51, 3.87] [0.49, 3.72]	50.0	1.09 1.03	[0.40, 2.93] [0.38, 2.79]
Maltreated	8.9	2.50* 2.44†	[1.02, 6.12] [0.99, 6.03]	61.7	0.67 0.67	[0.38, 1.19] [0.38, 1.19]	30.4	3.47*** 3.27***	[1.91, 6.29] [1.79, 5.95]	52.1	1.31 1.21	[0.74, 2.32] [0.68, 2.16]
Neither	5.0	5.63** 5.13**	[2.07, 15.35] [1.86, 14.14]	40.7	1.59 1.57	[0.89, 2.86] [0.87, 2.85]	15.3	8.45*** 7.59***	[4.40, 16.21] [7.59, 14.66]	73.0	3.22*** 2.86**	[1.76, 5.87] [1.55, 5.26]

Notes: AOR = adjusted odds ratio; CI = confidence interval. Numbers in cells vary slightly due to missing information.

* $p < .05$. ** $p \leq .01$. *** $p < .001$. † $p = .05$

^aCoded as 0 for unemployed and 1 for employed.

^bCoded as 0 for unskilled employment and 1 for skilled employment.

^cCoded as 0 for arrest and 1 for no arrest.

^dAdjusted for race, gender, and age at first interview.

^eAdjusted for race, gender, age at first interview, and self-reported delinquency.

LONG-TERM FOLLOW-UP OF CROSSOVER YOUTH

Table 13

Education, Employment and Adult Arrest Outcomes for Crossover versus Other Groups by Race

Group	Unemployed ^a			Unskilled Employment ^b			Adult Arrest ^c			High School Graduation		
	%	AOR ^d AOR ^e	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI	%	AOR AOR	95% CI
<u>White</u>												
Crossover	20.2			58.0			65.2			39.3		
Juvenile arrest	12.0	2.89* 2.87*	[1.03, 8.09] [1.03, 8.05]	56.0	1.07 1.07	[0.53, 2.16] [0.53, 2.17]	56.0	1.84 1.77	[0.88, 3.82] [0.84, 3.75]	38.0	0.95 0.91	[0.46, 1.94] [0.44, 1.86]
Maltreated	12.5	1.93† 1.89	[1.00, 3.76] [0.97, 3.69]	61.2	0.89 0.90	[0.55, 1.45] [0.55, 1.47]	34.3	3.19*** 2.81***	[1.92, 5.32] [1.67, 4.74]	48.1	1.44 1.29	[0.89, 2.32] [0.79, 2.11]
Neither	5.2	6.03*** 5.81***	[2.74, 13.27] [2.61, 12.92]	41.4	1.98** 2.01**	[1.21, 3.24] [1.22, 3.33]	25.4	5.18*** 4.35***	[3.04, 8.84] [2.51, 7.51]	69.8	3.57*** 3.12***	[2.16, 5.90] [1.87, 5.22]
<u>Black and Hispanic</u>												
Crossover	30.8			73.9			84.6			37.4		
Juvenile arrest	26.8	1.59 1.67	[0.63, 3.98] [0.64, 4.33]	62.5	1.75 1.75	[0.78, 3.92] [0.78, 3.92]	87.8	0.73 0.71	[0.24, 2.25] [0.23, 2.23]	48.8	1.65 1.62	[0.77, 3.44] [0.76, 3.47]
Maltreated	13.6	3.48** 3.16**	[1.72, 7.03] [1.53, 6.51]	61.6	1.50 1.51	[0.83, 2.70] [0.83, 2.74]	47.3	4.50*** 4.12***	[2.31, 8.78] [2.10, 8.08]	58.0	2.11** 1.94**	[1.23, 3.62] [1.11, 3.36]
Neither	8.8	6.72*** 6.09***	[3.12, 14.46] [2.77, 13.39]	43.6	3.23*** 3.28***	[1.80, 5.77] [1.82, 5.93]	34.4	9.07*** 7.90***	[4.61, 17.84] [3.98, 15.67]	78.1	5.53*** 4.88***	[3.11, 9.83] [2.71, 8.77]

Notes: OR = adjusted odds ratio; CI = confidence interval. Numbers in cells vary slightly due to missing information.

* $p < .05$. ** $p \leq .01$. *** $p < .001$. † $p = .05$.

^aCoded as 0 for unemployed and 1 for employed.

^bCoded as 0 for unskilled employment and 1 for skilled employment.

^cCoded as 0 for arrest and 1 for no arrest.

^dAdjusted for race, gender, and age at first interview.

^eAdjusted for race, gender, age at first interview, and self-reported delinquency.

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