THE INTERGENERATIONAL CONTINUITY OF CHILD MALTREATMENT: AN EXAMINATION OF ADOLESCENT, YOUNG ADULT, AND REPRODUCTIVE RISK FACTORS AMONG HIGH-RISK WOMEN

by

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Doctor of Philosophy

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Title: The Intergenerational Continuity Of Child Maltreatment: An Examination Of Adolescent, Young Adult, And Reproductive Risk Factors Among High-Risk Women

Although a history of childhood maltreatment is widely considered to be a risk factor for the perpetration of abuse or neglect in successive generations, the intergenerational transmission theory of child maltreatment has demonstrated mixed support over more than three decades of research. Using a prospective, longitudinal design, this study sought to investigate adolescent, young adult, and reproductive risk factors for the intergenerational continuity of child maltreatment, analyzing data from a sample of 147 women with a history of childhood maltreatment and child welfare services involvement (CWS), juvenile justice system (JJS) involvement, and out-of-home placements. The participants were originally recruited in adolescence for a randomized control trial (RCT) assessing the impact of the Treatment Foster Care Oregon (TFCO) intervention. Maltreatment continuity was measured using both official CWS records and participant self-report of contact with CWS. More than half the sample (n = 79, 53.7%) demonstrated maltreatment discontinuity (MD), indicating no evidence of maltreatment of offspring, and under half demonstrated maltreatment continuity (MC; n = 68, 46.3%). Using separate logistic regression analyses to test three models, results indicated that higher levels of hard drug use in adolescence increased the likelihood of maltreatment

continuity at young adult follow-up by 47%. Partner risk in young adulthood was a strong predictor of maltreatment continuity, increasing the likelihood of maltreatment of offspring by over 2 times, or 103%. Marijuana use in young adulthood also emerged as strong predictor of MC, but not in the expected direction: higher levels of marijuana use were associated with a 56% decreased likelihood of MC. An older age at first birth significantly predicted a 52% decreased likelihood of maltreating offspring. Study limitations, future directions, and implications for interventions are discussed.

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I wish to dedicate this dissertation to my son, Ronan Fleming Linscott.

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CHAPTER I

INTRODUCTION

Child maltreatment poses a major public health concern for society with serious social and economic consequences. The intergenerational continuity of child maltreatment, which is the continuation of a cycle of child maltreatment from victim to perpetrator across multiple generations, lends even greater burden to society given its long-term and far-reaching impacts. While the "cycle of violence" theory (Widom, 1989a) of the intergenerational continuity of child maltreatment has received considerable attention in the research literature, much remains to be determined regarding the prevalence, risks, protective factors, and pathways associated with the continuity of child abuse and neglect from one generation to the next.

Particularly little is known regarding the risk of future maltreatment of a subset of the population marked by extremely high levels of adversity and risk in childhood: girls with childhood maltreatment, child welfare system (CWS) history and involvement with the juvenile justice system (JJS). Prior research examining the intergenerational transmission of maltreatment may not generalize to a specific dually-involved, crossover youth population as delinquent girls in the JJS who possess significant histories of involvement with CWS, including documented maltreatment and out-of-home institutional care or foster care. The term "crossover youth" (Halemba et al., 2004; Herz & Ryan, 2008) is used to describe a particularly vulnerable segment of youth with a history of childhood maltreatment and involvement with child welfare services, who have additionally crossed over into involvement with the juvenile justice system. Using data from a longitudinal study that follows participants for over a decade from adolescence

into young adulthood, this study examines the developmental experiences of maltreated and delinquent crossover girls, exploring the role of hypothesized adolescent, young adult, and reproductive risk factors for predicting intergenerational maltreatment continuity.

Child Maltreatment

During the federal fiscal year 2013, an estimated 3.2 million referrals of child abuse or neglect were investigated by U.S. child protective services regarding 6.3 million children, and 679,000 children in the U.S. were found to be victims of substantiated child maltreatment (U.S. Dept. of Health & Human Services, 2013). Despite these striking numbers, maltreatment is believed to be vastly underreported (Wolfner & Gelles, 1993): 1 out of 4 children in the U.S. are estimated to experience some form of maltreatment, including physical abuse, neglect, emotional abuse, or sexual abuse (Finkelhor, Turner, Ormond & Hamby, 2013). Female parents, most often biological, are found to be the most frequent perpetrators of child maltreatment (U.S. Department of Health and Human Services, 2008). The costs of child maltreatment to society are also extreme, at an estimated $124 billion of total lifetime economic burden (Fang, Brown, Florence & Mercy, 2012).

The long-term negative effects of child maltreatment are extensive and well documented. Overall, a history of child maltreatment has been found to be the strongest predictor of multiple behavioral problems in adolescence (Lansford et al., 2002). Maltreated children are at higher risk than non-maltreated children for a range of negative behavioral outcomes in adolescence and adulthood (Cicchetti & Toth, 2005; Kaplow &

Widom, 2007; Kim & Cicchetti, 2010; Maughan & Cicchetti, 2002), including externalizing problems, delinquency, arrest, and substance use disorders (Kunitz, Levy, McCloskey, & Gabriel, 1998; Widom, Ireland, & Glynn, 1995). Victims of child maltreatment are also found to be more likely to perpetrate youth violence and have relational problems including intimate partner violence than non-maltreated youth (Fang & Corso, 2007; Hubbard & Pratt, 2002; Kunitz et al., 1998; Widom, Czaja, & Dutton, 2008).

The relation of child maltreatment for risk of committing aggressive, violent, criminal and antisocial behavior is well supported in childhood and adulthood (Dodge, Pettit & Bates, 1997; Fergusson, Horwood, & Linskey, 1996; Flisher et al., 1997; Herrenkohl, Egolf, & Herrenkohl, 1997; Herrera & McCloskey, 2001; Lansford et al., 2007; Maxfield & Widom, 1996; Luntz & Widom, 1994; Silverman, Reinherz, & Giaconna, 1996; Widom, 1996; Widom, 1999). Research suggests that experiencing child maltreatment places children at risk for a host of short and long-term consequences related to deviant peer association and delinquency (Bolger & Patterson, 2001; Kim & Cicchetti, 2010; Parker & Asher, 1987), including involvement with the JJS (Herrera & McCloskey, 2001; Widom, 1989b). In a study of the effects of adverse childhood experiences (ACEs) including childhood maltreatment, high-risk female juvenile offenders demonstrated multiple exposures and higher prevalence of ACEs compared to males (Baglivio & Epps, 2015). Such findings suggest that maltreated females are at especially high risk for delinquency in adolescence as well as into adulthood, propagating further risk for other long-term, cascading negative outcomes.

The Intergenerational Continuity of Child Maltreatment

Perhaps the most commonly assumed developmental pathway for the perpetration of child maltreatment involves the theory of the "cycle of violence" (Widom, 1989a), by which those who have been maltreated as children are theorized to be more likely to maltreat their offspring. Despite receiving a high degree of acceptance in the public, the intergenerational transmission of maltreatment hypothesis has received mixed support in the research literature to date. While it is considered likely that a history of child maltreatment lends greater risk for perpetration of maltreatment, many researchers have highlighted that this has not been adequately substantiated with methodologically rigorous empirical studies or consistency across studies, and stress the need for further research on the topic (e.g., Ertem, Leventhal, & Dobbs, 2000; Kaufman & Zigler, 1987). In a recent review of the research literature regarding the intergenerational transmission of child maltreatment, Thornberry, Knight, and Lovegrove (2012) argue that much of the support for the positive association found in the literature is based on weak methodological designs, including the use of retrospective reports, single source reports, sampling issues, lack of clear definition of maltreatment, and lack of adequate follow-up over time. Estimates of rates of intergenerational transmission of abuse vary widely, from 6.7% of maltreatment victims becoming perpetrators in the U.K., (Dixon, Hamilton-Giachritsis, & Brown, 2005), and from 18% (Hunter & Kilstrom, 1979) to as high as 60% (Egeland & Sroufe, 1988) in the United States. Given these concerns, this section will highlight relevant findings from a number of studies that were deemed among the most methodologically rigorous by Thornberry et al. (2012).

Among these strong methodological reviews, the evidence is still compelling for

support of the intergenerational maltreatment continuity effect, as many rigorous studies have found that a childhood history of maltreatment was related to risk for maltreatment of offspring (Belsky, 1993; Dixon et al., 2005; Dubowitz, 1999; Egeland, Jacobvitz, & Sroufe, 1988; Milner & Chilamkurti, 1991; Milner & Dopke, 1997; Thompson, 2006). In one recent study, Thornberry and Henry (2013) found strong support for the theory of the intergenerational continuity of child maltreatment, or the "cycle of maltreatment." Analyzing prospective longitudinal data from the Rochester Youth Development Study, substantiated maltreatment victimization and perpetration was examined from birth to age 33 years. Results indicated that a history of maltreatment victimization significantly increases the risk for perpetration of maltreatment by 2.6 times, and 23% of participants in the sample who were maltreated went on to abuse or neglect their own children. Pears and Capaldi (2001) also found strong evidence to support the theory of intergenerational transmission of child maltreatment. Results of their study indicated that parents who were maltreated were more likely to maltreat their offspring, also at a rate of 23% of intergenerational transmission. Earlier reviews of the literature regarding risk for maltreatment yield other important specific findings relevant to this study. Risk factors including problematic adult relationships and substance use were found significantly related to physical abuse and neglect of offspring (Belsky, 1993; Black, Heyman, & Slep, 2001; Dubowitz, 1999; Milner & Chilamkurti, 1991; Milner & Dopke, 1997).

Yet other methodologically sound studies have found weak, mixed or no support for the intergenerational transmission hypothesis. Renner and Slack (2006) found little support for intergenerational transmission of child maltreatment, but stronger support for the relation between childhood maltreatment and intimate partner violence (IPV)

victimization as an adult. Sidebotham et al. (2001) found evidence for the role of maternal sexual abuse alone as a maltreatment subtype, which significantly predicted risk of perpetration of all forms of maltreatment. Altemeier et al. (1986) and Widom (1989b) found no support for the intergenerational transmission of maltreatment, but parents who were abused or neglected as children were found more likely to be arrested for violent and criminal behaviors other than child maltreatment (Widom, 1989b). In an early challenge to the unqualified acceptance of the intergenerational transmission theory, Kaufman and Zigler (1987) stress that while some victims do become perpetrators of maltreatment, the vast majority do not, breaking the supposed cycle of violence. They argue that the question of whether or not abused children become abusers themselves is unhelpful and perhaps even damaging for those with histories of childhood maltreatment. Rather, they stress, researchers should focus their efforts on better understanding the conditions by which the intergenerational continuity of maltreatment is most likely to occur. In this vein, this study seeks to address how certain adolescent, young adult, and reproductive risk factors in a high-risk sample lend risk for the continuation of maltreatment across multiple generations.

Theoretical Framework & Purpose of the Study

Exploring the roles of substance use, delinquency, criminality, and relational and reproductive factors, the aim of this study is to identify mechanisms by which the intergenerational cycle of maltreatment is perpetuated. This study uses a developmental approach (Cicchetti & Carlson, 1989; Cicchetti & Toth, 1995) to the understanding of how adolescent, young adult, and reproductive risk factors in women with a history of

childhood maltreatment and JJS involvement (crossover youth) relate to the intergenerational transmission of child maltreatment. Child maltreatment is multifaceted and complex; considering it within the lens of a developmental psychopathology approach by acknowledging the processes of *multifinality* and *equifinality* (Cicchetti & Rogosch, 1996; Cicchetti & Valentino, 2006) is helpful in order to elucidate its perpetuation. An approach to understanding child maltreatment that involves multifinality acknowledges myriad and far-ranging developmental cascading outcomes (Masten & Cicchetti, 2010) associated with child maltreatment. Additionally, considering the equifinality of child maltreatment, numerous causes, pathways, and conditions have been theorized and substantiated by the research literature to lead to the maltreatment of children. As will be described, many of the risk factors explored in this study are complex, serving as both predictors and consequences of child maltreatment. Teasing out which factors are truly related to intergenerational maltreatment cycle effects, as opposed to single-generation child maltreatment in of itself, is challenging; a developmental psychopathology approach can aid in these distinctions.

Another useful framework for understanding the continuation of maltreatment across generations is social learning theory (Bandura, 1977; Belsky, 1984). Parents and other caregivers serve as primary models for children regarding parenting and appropriate and inappropriate behaviors broadly, and a social learning approach posits that these models can be carried into adulthood for future parenting. Those with a history of child maltreatment, foster or institutional care, and inconsistent caregiving environments marked by multiple placement transitions may be at greater risk not only for a negative developmental trajectory, but also for the replication of child abuse and neglect within

their own families as adults. This study seeks to add to the existing literature in order to better understand various risks associated with the continuity of a cycle of child maltreatment across multiple generations. Acknowledging that the causes and consequences of child maltreatment are complex, interrelated, and many, this study uses a unique sample of crossover youth who have been exposed to high levels of adversity to explore the influence of adolescent, young adult, and reproductive risk factors for the intergenerational continuity of child maltreatment.

Investigation of Adolescent, Young Adult, and Reproductive Risk: The Intergenerational Continuity of Child Maltreatment

By examining adolescent risk indices as well as young adult outcomes, this study seeks to identify which factors contribute to the risk of perpetrating maltreatment among those with a history of child maltreatment. Predicting group membership, the study aims to determine what differentiates those participants who fall into the *maltreatment continuity* (MC) group, indicating that intergenerational maltreatment has occurred, versus those who fall into the *maltreatment discontinuity* group (MD), indicating a lack of evidence of maltreatment perpetration. The purpose of this examination is to contribute to the existing knowledge base and address gaps in the literature regarding the specific risk factors and developmental trajectories into young adulthood associated with the intergenerational continuity of child maltreatment.

Adolescent Risk and Maltreatment Continuity

Risk factors in adolescence, including delinquency, deviant peer association, and substance use, that serve as features of a negative developmental trajectory associated

with child maltreatment will be examined for their association with the intergenerational continuity of child maltreatment in young adulthood. This section briefly outlines the theoretical rationale for the inclusion of each adolescent risk factor in the study.

Delinquency. The sample of interest in this study is women with a history of child maltreatment, out-of-home care, delinquency, and involvement with the JJS. Delinquency in adolescence is consistently found to be an outcome of child maltreatment and is associated with a high-risk behavioral trajectory leading to a range of negative outcomes in adulthood, including child maltreatment. In a recent study of adolescent risk factors for child maltreatment, Thornberry et al. (2014) found antisocial behaviors in adolescence to be predictive of child maltreatment in adulthood. Females with a history of juvenile justice involvement have found to be at especially great risk for child maltreatment compared to males with similar history (Colman, Mitchell-Herzfeld, Kim, & Shady, 2010). Colman et al. (2010) conducted a prospective study of 999 girls with juvenile justice involvement, finding that almost two-thirds demonstrated were investigated for child maltreatment and more than half demonstrated involvement with the adult criminal justice system and child welfare systems by the age of 28. Maltreated youth are at much greater risk for juvenile delinquency and arrest (Ryan & Testa, 2005; Widom & Maxfield, 2001) than non-maltreated youth. Among girls specifically, delinquency is associated with later negative and ineffective parenting practices across generations (Serbin & Karp, 2004; Shapiro & Miller, 1998), with negative parenting including harsh, neglectful, aggressive and unstimulating practices. Taken together, these findings highlight the imperative for further research regarding the experiences of delinquent girls and the risk for future maltreatment.

While evidence points to the role of delinquency in adolescence for later negative parenting practices, antisocial behavior in adulthood, and child maltreatment, research is lacking regarding the more direct role of adolescent delinquency for the intergenerational transmission of child maltreatment per se. As a potential mediated effect of adolescent delinquency for maltreatment continuity, levels of adolescent antisocial behavior are associated with adult antisocial and aggressive behavior (Stattin & Magnusson, 1991), which has been found to predict the intergenerational continuity of child maltreatment (Berlin, Appleyard, & Dodge, 2011; Jaffee et al., 2013). In this study, inclusion of delinquency as an adolescent risk factor for maltreatment continuity will provide needed investigation of this relationship.

Deviant peers. Peer relationships in adolescence exhibit a strong influence on behavior and the likelihood of delinquency. Deviant peer association in childhood and adolescence is considered a well-established aspect of the negative developmental sequelae associated with child maltreatment, yet little is known regarding its role in risk for future maltreatment of offspring. Deviant peer associations have been linked to escalation in risky behavior, including increases in substance use (Dishion & Owen, 2002; Stormshak, Comeau, & Shepard, 2004) and delinquency and antisocial behavior (Elliott, Huizinga, & Ageton, 1985; Stoolmiller, 1994), other risk factors that are found to both serve as outcomes of child maltreatment and potential predictors of maltreatment of offspring. Indeed, the interplay of parenting behaviors and deviant peer associations is critical for understanding high-risk adolescent behavioral trajectories and their influence on adult outcomes. Ineffective parenting with low levels of parental monitoring in adolescence is found to facilitate access to deviant peer associations (Dishion, Nelson, &

Bullock, 2004). Further, effective family management practices and decreases in deviant peer associations have been found to effect decreases in antisocial behavior (Eddy & Chamberlain, 2000) and substance use (Dishion, Kavanagh, Schneiger, Nelson, & Kaufman, 2002). These findings suggest that association with deviant peers may not only serve as part of a larger trajectory of risk, but may also play a role in the maltreatment of offspring as a developmental outcome. Deviant peer associations may be related to the intergenerational continuity of maltreatment as part of a high-risk developmental trajectory, yet research directly examining the association is lacking. More research is needed to investigate this potential link. The current study seeks to examine the effects of deviant peer association in a high-risk, maltreated and delinquent sample for intergenerational maltreatment transmission.

Adolescent substance use. Adolescent substance use is an important risk factor for maltreatment continuity for both women with a history of childhood maltreatment and those with histories of juvenile justice system involvement. Girls who were maltreated in childhood are at high risk for alcohol use problems in adolescence (Lansford, Dodge, Pettit, & Bates, 2010) and into adulthood (Widom et al., 1995). Maltreated girls are also at especially high risk for alcohol abuse later in life (Simpson & Miller, 2002; Widom, Ireland, & Glynn, 1995; Widom, White, Czaja, & Mamorstein, 2007), placing their offspring at greater risk for child maltreatment victimization (Widom & Hiller-Sturmhofel, 2001). Girls with juvenile justice involvement are at especially high risk for substance use disorders (Teplin et al., 2005; Lederman et al. 2004), and these findings combined suggest that crossover youth, having both substance use risks associated with maltreatment and delinquency, are particularly vulnerable to developing early problems

with alcohol and other drugs. More research is needed to further investigate the role of substance use as a risk factor for the intergenerational transmission of maltreatment, particularly among high-risk, juvenile female offenders. As substance use is implicated in both the precursors to maltreatment and consequences of maltreatment, investigating the potential role of early substance use as a risk factor for future maltreatment of offspring could add to gaps in existing knowledge regarding the role of substance use for the intergenerational continuity of child maltreatment in a high-risk sample. Further, more research is needed regarding which specific types of substances used in adolescence, such as alcohol, marijuana, or other illicit drug use (referred to as "hard drug use" for these purposes), lend the most risk for maltreatment of offspring in young adulthood. This study will examine the associations of alcohol use, marijuana use, and hard drug use in adolescence with intergenerational maltreatment continuity.

Young Adult Risk and Maltreatment Continuity

In addition to exploring the role of adolescent risk factors for later maltreatment, this study also sought to investigate the association between risk factors in young adulthood and intergenerational maltreatment continuity. Hypothesized young adult risk factors including substance use and partner risk were examined for associations with intergenerational maltreatment.

Young adult substance use. Substance use in adulthood has robust associations for risk of perpetrating maltreatment as well as for the intergenerational transmission of maltreatment (Jaffee et al., 2013; Milner & Chilamkurti, 1991; Schumaker, Slep and Heyman, 2001). Adults with substance use problems are at higher risk for maltreating their own children than those without drug and alcohol problems (Belsky, 1993; Milner

& Chilamkurti, 1991), and women with histories of juvenile justice involvement are found to be at particularly high risk for drug use and related problems in adulthood (Chassin, 2008). Relatively less is known regarding adulthood substance use among women with a history of juvenile justice system involvement, compared to a large amount of existing evidence regarding adolescent use in delinquent samples. In addition to examining the more distal role of adolescent substance use for future maltreatment perpetration, this study also sought to examine the more proximal associations of substance use in young adulthood with intergenerational maltreatment continuity. Examining the contributing roles of alcohol, marijuana, and hard drug use in young adulthood for the intergenerational continuity of maltreatment, this study sought to address gaps in the existing literature regarding risks related to substance use for perpetration of child maltreatment across generations in a unique high-risk sample of women with crossover youth history.

Partner risk. Among women with a history of childhood maltreatment, partner-related factors can significantly influence the parenting environment and the risk of maltreatment of offspring. While strong research exists supporting the intergenerational theory of childhood maltreatment predicting intimate partner violence in adulthood (e.g., Renner & Slack, 2006), somewhat less is known regarding the direct impact of more specific partner risk factors, such as partner's substance use and criminal history, for the risk of maltreatment continuity.

Broadly, resilience to the negative effects of maltreatment has been associated with healthy intimate partnerships in young adulthood (DuMont, Widom, & Czaja, 2007), while involvement in problematic adult relationships are associated with a history

of child maltreatment (Elliott, Cunningham, Linder, Colangelo, & Gross, 2005; Muller, Gragtmans, & Baker, 2008; Weisbart et al., 2008). A strong, emerging body of research has documented the role of safe, secure and nurturing relationships in adulthood for decreasing the risk of perpetration of child maltreatment (Conger, Schofield & Neppl, 2012; Conger, Schofield, Neppl and Merrick, 2013; Egeland, Jacobvitz, & Sroufe, 1988; Jaffee et al. 2013). Alternately, in young adulthood, partnerships marked by unhealthy relational factors such as intimate partner violence are associated with risk for the perpetration of child maltreatment (Stith et al., 2009) as well as the intergenerational transmission of maltreatment (Jaffee et al., 2013).

Supporting the importance of partner-related risk factors for intergenerational maltreatment continuity, Dixon et al. (2005) found that among women with a history of childhood maltreatment, those living with a violent adult were significantly more likely to maltreat their offspring. Children from families with criminal and substance use problems are at greater risk for maltreatment (Widom, 1999), and women with histories of juvenile justice involvement have been found to be more likely to make poor partner choices and have involvement with partners with violent and/or antisocial behavior (Cauffman, Farrugga, & Goldweber, 2008; Oudekerk & Reppucci, 2010), leading to a greater likelihood of perpetrating child maltreatment (Woodward, Fergusson & Horwood, 2002).

Compounding this risk, the quality of close relationships in young adulthood is found to impact drug use (Pettit, Erath, Lansford, Dodge, & Bates, 2011), and higher partner drug use is associated with an increase in the other partner's use (Homish, Leonard, & Cornelius, 2007). In a previous study using an almost identical participant

sample as in this study, partner drug use was significantly associated with participant drug use in young adulthood longitudinally, supporting evidence of influential relational effects on substance use over time (Rhoades, Leve, Harold, Kim, & Chamberlain, 2014). Part of this relational risk process may involve the idea of ensnarement, by which one partner might have demonstrated a normative decline in substance use in young adulthood (SAMHSA, 2012), but involvement with a partner who engages in heavier substance use leads to continued elevated levels of substance use, disrupting caregiving abilities and other developmentally appropriate responsibilities (Hussong, Curran, Moffitt, Caspi & Carrig, 2004). In a recent paper using a very similar analytic sample, partner risk factors including marijuana use, other illicit drug use, and arrest history in the partner were found to significantly predict maltreatment perpetration (Leve, Khurana, & Reich, 2015). Partner risk was found to predict maltreatment via both self-report of child welfare services (CWS) contact and official child welfare records of substantiated reports of maltreatment, as assessed separately. However, in that study, the participant's own substance use in young adulthood was not considered in tandem along with partner risk in terms of predicting intergenerational maltreatment effects. The risk of partner criminality and substance use are two key areas warranting further research regarding associated impacts on maltreatment continuity. This study sought to assess the impact of partner risk along with participant young adult risk factors in order to further explore unique contributions and potential interactions for intergenerational maltreatment continuity.

Together, these findings point to the importance of assessing the impact of partner-related risk factors, including substance use and criminality, for the intergenerational continuity of child maltreatment; more research is needed to better

elucidate the influence of partners for risk of child maltreatment across generations. This study investigates the role of the partner risk, using a composite index of marijuana use, other illicit drug use, and criminal behavior for intergenerational maltreatment continuity.

Reproductive Risk and Maltreatment Continuity

Reproductive factors such as having an early age of first pregnancy, a young age at first birth and having many children in custody may pose significant risk for the intergenerational continuity of child maltreatment, particularly among high-risk women with a history of dual-involvement with the child welfare and juvenile justice systems. Girls demonstrating antisocial and delinquent behavior in adolescence have higher rates of reproductive risk indicators such as risky sexual behavior and teen pregnancy (Ary, Duncan, Duncan, & Hops, 1999; Pajer, 1998; Serbin et al., 2004), and female juvenile offenders are known to have children at a younger age than non-offenders (Cauffman, 2008). Rates of teen pregnancy are especially high among girls with a history of foster care (Love, McIntosh, Rosst, & Tertzakian, 2005) and child welfare system involvement (Courtney et al., 2005). Using an analytic sample very similar to the one used in this sample, Leve, Kerr, and Harold (2013) conducted a study exploring young adulthood outcomes associated with teen pregnancy. The authors found that teen pregnancy was related to child welfare involvement at a 7-year post-baseline assessment, supporting the association between a young age of first pregnancy and perpetration of child maltreatment.

Among women with a history of childhood maltreatment, teenage pregnancy and young age at first parenthood can pose serious and negative consequences for both mother and child. Further, teen mothers are more likely to have offspring who become

parents at a young age as well, suggesting an intergenerational continuity effect of early parenthood (Shapiro & Miller, 1998). Teenage parenthood has been associated with greater risk for maltreatment of children (Elfenbein & Felice, 2003; Maynard, 1996; Thornberry et al., 2014); for those teens with a history of child maltreatment and out-of-home care, lack of adequate resources or support with childrearing and a deficit of positive parenting role models available from extended family may lend greater risk for intergenerational maltreatment of offspring. A number of other early studies found support for the risk of early first parenthood for child maltreatment (e.g., Creighton, 1985; Herrenkohl & Herrenkohl, 1979; Zuravin, 1987), indicating that an age of first birth of 20 or under resulted in an increased likelihood of perpetrating abuse or neglect. More recent studies have also shown early parenthood to be associated with intergenerational effects of maltreatment (Egeland et al., 2002; Dixon, 2005; Strauss, 1994). Dixon et al. (2005) collected data from 4,351 families in the U.K. who had recently become parents; assessments conducted by nurses in the home indicated that by the time of 13 months of age, infants whose parents were maltreated as children were more likely to experience maltreatment. The study demonstrated a mediating role of young age at first parenthood for the relationship between childhood maltreatment history and intergenerational continuity; findings indicated that parents with a history of child maltreatment were more likely to maltreat offspring if they were under the age of 21 years.

Additionally, children from families with a larger number of children have been found to be a greater risk for maltreatment (Widom, 1999). In one study conducted in Chile, families with four or more children in dependent custody were found to be 3 times

as likely to physically abuse their children (Larrain, Vega, & Delgado, 1997). The risk for maltreatment related to family size may be due in part to the effects of overcrowding, which has been shown to lend maltreatment risk (Dubowitz & Black, 2001; Youssef, Attia, & Kamel, 1998). Together, findings from the literature indicate that reproductive factors such as teenage pregnancy, a young age at first birth, and having a high number of children in custody are related to risk for maltreatment. Additional research is needed to assess for the impact of these risks in a high-risk, crossover youth sample. Investigating which reproductive factors lend particular risk for intergenerational maltreatment continuity, this study sought to further elucidate how reproductive timing and family size contribute to the perpetuation of maltreatment across multiple generations.

Research Questions, Hypotheses and Model Design

In summary, the findings described above suggest that adolescent, young adult, and reproductive risk indices may be important factors related to the perpetration of child maltreatment across multiple generations of high-risk women. As such, this study seeks to add to the existing literature base by examining the predictive impact of a range of adolescent, young adult and reproductive risk factors for the intergenerational continuity of child maltreatment among women with a history of both CWS and JJS involvement. Three central research questions and attendant hypotheses are described below.

Research Question 1. Do adolescent risk factors including delinquency, adolescent deviant peer association, and adolescent substance use predict maltreatment continuity?

Hypothesis 1. Higher rates of adolescent delinquency, adolescent association with

deviant peers, and adolescent substance use were each predicted to result in an increased likelihood of maltreatment continuity.

Research Question 2. Do young adult risk factors including substance use and partner risk predict maltreatment continuity?

Hypothesis 2. Higher rates of substance use (including alcohol, marijuana, and hard drug use) and levels of partner risk (including partner marijuana use, other illicit drug use, and criminal arrest history) in young adulthood were each predicted to result in an increased likelihood of maltreatment continuity.

Research Question 3. Do reproductive risk factors including age at first pregnancy, age at first birth, and number of children in custody at a young adult follow-up predict maltreatment continuity?

Hypothesis 3. Younger age at first pregnancy, younger age at first birth, and having a greater number of children in custody in young adulthood were each predicted to result in an increased likelihood of maltreatment continuity.

Figures 1—3 depict the three hypothesized models of adolescent, young adult, and reproductive risk factors for intergenerational maltreatment continuity. The next chapter will describe the methods by which this study was conducted, including the nature of the sample, study procedures, measures used to assess the predictors and maltreatment continuity outcomes, and the data analytic plan implemented.

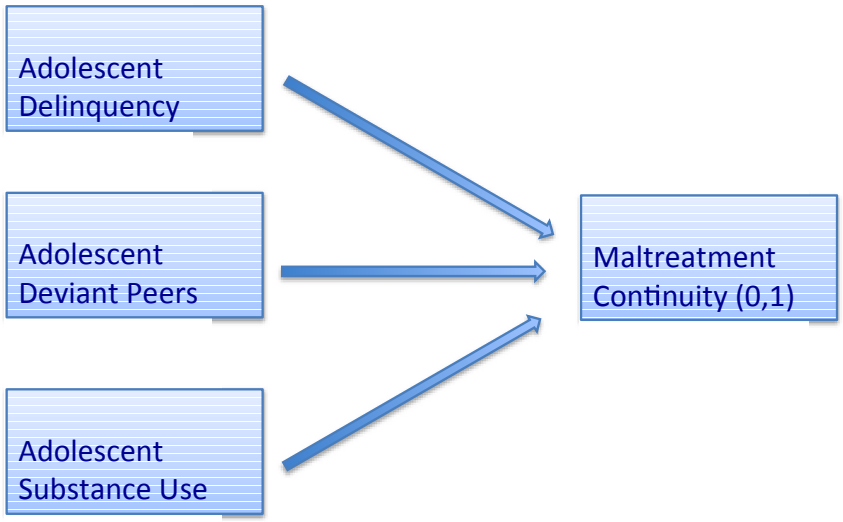

Figure 1. Hypothesized main effects of adolescent risk factors on maltreatment continuity.

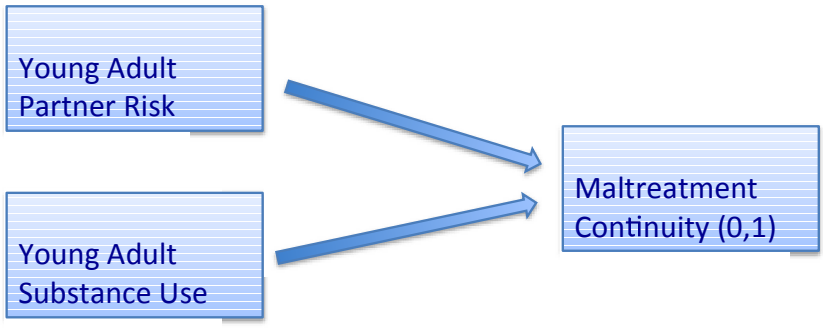

Figure 2. Hypothesized main effects of young adult risk factors on maltreatment continuity.

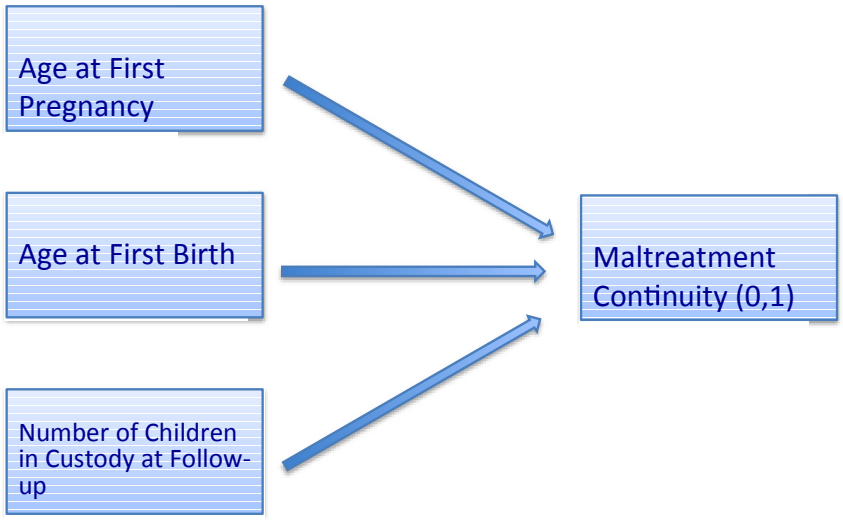

Figure 3. Hypothesized main effects of reproductive risk factors on maltreatment continuity.

CHAPTER II

METHODS

This chapter outlines methods used for the study, including a description of study participants, procedures, measures, and the data analytic plan. The project was supported by the Oregon Youth Authority and by Grants R01 DA024672 (P.I., Leslie Leve, Ph.D.), R01 DA015208 (P.I., Patricia Chamberlain, Ph.D.), from the National Institute on Drug Abuse, and by Grant R01 MH054257 (P.I., Patricia Chamberlain, Ph.D.), from the National Institute of Mental Health.

Participants

Participants for this study were drawn from a sample of women with juvenile justice system involvement and a history of out-of-home care as teenagers (N = 166); from this larger sample, those with a history of childhood maltreatment (N = 147, 88.6%) were included for study analyses. As adolescents, they participated in one of two consecutively run randomized control trials and were randomly assigned to either a Treatment Foster Care Oregon intervention (TFCO; formerly known as Multidimensional Treatment Foster Care), or out-of-home treatment as usual (TAU), typically a residential group care environment. The study consisted of two cohorts (Cohort 1, n = 81; Cohort 2, n = 66). Details regarding the intervention can be found elsewhere (see Chamberlain, 2003; Chamberlain, Leve, & DeGarmo, 2007; Leve, Chamberlain, Smith, & Harold, 2011). Participants were referred to the study by Oregon juvenile court judges and enrolled consecutively based on when they were court-mandated. Enrolled girls had at least one criminal referral in the past 12 months, had been placed in out-of-home care

within 12 months of referral and were not pregnant at the time of enrollment. All participants had a history of chronic delinquency and serious family adversity, and had been removed from their caregivers and mandated to out-of-home, community-based care. Participants were assessed longitudinally for approximately 10 years from adolescence into young adulthood.

History of childhood maltreatment was assessed at baseline using official child welfare services (CWS) records and caseworker report of CWS maltreatment records, if official CWS records were not available. Participants without a documented history of childhood maltreatment ($N = 19$) were excluded from analyses in order to preserve an intergenerational maltreatment sample, resulting in an analytical sample of $N = 147$. For both cohorts, a history of child maltreatment was considered present if one or more of the following maltreatment types were recorded by either CWS records or caseworker report: documented physical abuse of the participant, documented sexual abuse of the participant, documented physical abuse in the immediate family, or severe family violence. For Cohort 2, data were also available regarding documented history of neglect (failure to provide and/or lack of supervision), emotional abuse, and other parent behaviors constituting abuse. Child maltreatment history was considered present if one or more of these indicators were recorded, in addition to the above indicators.

Baseline adolescent age ranged from 12.5 - 17.8 years, reflecting the ages of participants at first data collection; the median age was 15.28 years (SD = 1.19). The reported ethnic background of participants was as follows: 68.1% Caucasian, 1.8% African American, 11.4% Hispanic, 0.6% Native American, 0.6% Asian, and 16.9% of

mixed ethnic heritage, and 0.6% reported other or unknown ethnicity. This sample demonstrated greater racial and ethnic diversity relative to the general population of the region close to the time of study enrollment, in which 93% of girls aged 13-19 were Caucasian (U.S. Department of Commerce, 1992). Over thirty percent of the participants lived in families earning less than $10,000, and 61% of the girls lived with single-parent families. No group differences were observed in the rate or type of pre-baseline offenses or demographic characteristics.

Procedures

This study examines existing data from seven assessments points within a longitudinal study conducted in a medium-sized city in the state of Oregon. The full study from which this sample is drawn consists of 12 assessment points spanning more than a decade. At baseline, participants completed a 2-hour in-person assessment, and in-person follow-up assessments were conducted at 6, 12, 24, and 36 months post-baseline. Young adulthood follow-ups were conducted every six months from 7 to 9.5 years post-baseline on average, with one in-person interview and the other interviews conducted by telephone. Predictor variables for this study were from two time points: one at the adolescent baseline data collection time point, when participants were ages 13-17 years old, and one approximately 7-years later, during the first young adulthood follow-up time point (wave 8) when women were between the ages of 18-29. The mean time from adolescent baseline to the first young adult follow-up was 6.96 years. Regarding this young adulthood follow-up time point, it should be noted that this occurred at different points for different participants, because participants in each of the two cohorts entered

the study at various times and respective ages, due to the nature of ongoing study enrollment based on court referral.

Data regarding the maltreatment continuity outcome were gathered over the course of five additional follow-up young adult assessments, conducted every 6 months for 2 years, from approximately 7.5 – 9.5 years post-baseline (waves 9-13), as more fully described below. All predictor and control variable data were gathered from assessments that occurred prior to the maltreatment continuity outcome time points, in order to preserve appropriate sequential ordering of predictors and outcome measures.

From the sample of 147 participants with a history of child maltreatment, different subsamples were used for each of the three hypotheses due to missingness and other factors that will be discussed in the sections that follow. The participant sample used for analysis for Hypothesis 1, $n = 125$, tested the predictive ability of adolescent risk factors for maltreatment continuity. The participant sample used for analysis for Hypothesis 2, $n = 101$, tested the predictive ability of young adult risk factors for maltreatment continuity. The participant sample used for analysis for Hypothesis 3, $n = 106$, only included participants who had children by young adult follow-up and tested the predictive ability of reproductive risk factors for maltreatment continuity. Reasons for missing data and differences in sample sizes are detailed fully within Chapter III, Results.

Measures

Maltreatment continuity. Maltreatment continuity was assessed using official CWS records of substantiated reports of maltreatment, in addition to participant self-report of their contact with CWS as an adult. This information was gathered from five

assessments at waves 9 – 13, such that the MC outcome assessments occurred after the assessment of the predictor variables. The mean age at wave 9 was 22.69 years and 24.74 years at wave 13. Maltreatment continuity was computed as a dichotomous variable dummy coded either 0 or 1, with a score of 0 indicating maltreatment discontinuity (no maltreatment of children evidenced), and a score of 1 indicating maltreatment continuity was present. Participants given a score of 1 are those who had either self-report of contact with CWS or official CWS records of substantiated maltreatment of children in custody at any point during waves 9 – 13. Within the sample, 31 participants did not have children by wave 13; in the absence of substantiated CWS reports or self-report of child maltreatment, these participants were given a score of 0, indicating no maltreatment continuity present. Within the sample, 46.3% (n = 68) demonstrated maltreatment continuity, and 53.7% (n = 79) did not. Further details regarding the two indicators of MC are provided below.

Substantiated CWS reports. Official CWS records of substantiated reports of child maltreatment was obtained from the Oregon Department of Human Services, Children, Adults and Family Division at wave 13, the final young adult assessment time point. Maltreatment types assessed included physical abuse, neglect, medical neglect, sexual abuse, and emotional abuse, and other maltreatment. MC was considered present if participants had one or more substantiated CWS reports of maltreatment of any type. In the sample, 38.8% (n = 57) had one or more substantiated reports of maltreatment, while 61.2% (n = 90) had no substantiated reports. The range of total number of substantiated reports for the sample was 0 – 9; of those with one or more reports, 77% had 1 - 3 reports on record.

Self-reported CWS contact. Maltreatment continuity was also assessed by participant self-report regarding whether or not they had any contact in the past 6 months with child welfare services regarding maltreatment of any of their children. Any report of one or more contacts with child welfare services regarding either new investigations of maltreatment or ongoing cases of maltreatment for any of their children resulted in maltreatment continuity coded as present. Self-report of CWS contact was gathered during assessments at waves 9 - 13; self-report of CWS contact at any of these waves resulted in participants receiving a score of 1 for maltreatment continuity present. In the sample, 31.3% of participants (n = 46) reported having one or more contacts with CWS, and 68.7% (n = 101) did not report any CWS contacts.

The two indicators of maltreatment continuity (self-reported CWS contact and substantiated CWS reports) were significantly correlated, r = .52, p < .01. This suggests that while there was a significant amount of overlap, meaning participants had both indicators of MC present, many participants just one of the two indicators present or neither present. As noted above, 53.7% (n = 79) had neither present; further analyses demonstrated that 22.4% (n = 33) had one indicator present, and 23.8% (n = 35) had both indicators present.

Adolescent risk factors. Adolescent risk factors will incorporate three variables reflecting participants' experiences at entry to the study, including delinquency, deviant peer association, and substance use indicators (alcohol, marijuana, and hard drug use, measured separately).

Delinquency. Delinquency in adolescence was measured at adolescent baseline and a delinquency composite was formed using three indicators assessing behavior during the previous 12 months, including number of criminal referrals, number of days spent in locked settings and self-reported delinquency (Chamberlain, Leve, & DeGarmo, 2007). Criminal referrals, which have found to be reliable indicators of externalizing behaviors (Capaldi & Stoolmiller, 1999), were collected from official state police records and circuit court data. Days spent in locked settings was measured by self-report of number of days spent in detention, correctional facilities, jail or prison in the past 12 months. Self-reported delinquency was measured using the Elliott Self-Report of Delinquency Scale (Elliott, Huizinga, & Ageton, 1985); from this, the 21-item General Delinquency Subscale was used, which recorded the number of times participants violated certain laws within the 12 months prior (e.g., property damage, theft, and assault). Items were capped at a maximum frequency prior to computing the final score in order to transform scores toward normality (Leve, Chamberlain, & Reid, 2005). Reliability for this scale at adolescent baseline was acceptable, Cronbach's alpha = .85. The three delinquency indicators significantly correlated with one another, and principal components analysis from a previous study using this sample indicated a single factor solution (Leve, Khurana, & Reich, 2015). Each of the three delinquency indicator scores were rescaled from 0 to 1, and the average of the three indicator scores provided the final delinquency score.

Deviant peer associations. Deviant peer associations were assessed using self-report regarding peer relationships on the Describing Friends Questionnaire (Capaldi & Dishion, 1995), as gathered from an interview with the participant at baseline. The

questionnaire assesses the extent to which the participant associates with friends who engage in delinquent behavior. A 24-item measure, the participant reports how many of her friends engaged in various delinquent behaviors over the past 6 months (e.g., belonged to a gang, shoplifting), using a scale from 1 (*none of my friends*) to 5 (*all of my friends*). Several items required reverse coding in order for higher scores to indicate higher deviant peer association. Item scores were averaged to create a composite of deviant peer associations. Reliability for this measure at adolescent baseline was acceptable, Cronbach's alpha = .91.

Substance use: Alcohol, marijuana, and hard drugs. Frequency of drug and alcohol use in adolescence was measured using self-reported use of different classes of substances, as gathered from the adolescent baseline assessment. Participants reported how often they had used a variety of substances during the past 12 months on a Likert-type scale ranging from 1 – 5, with 1 = *never*, 2 = *tried once or twice*, 3 = *occasionally*, 4 = *1-6 times per week* and 5 = *one or more times per day*. Substance use indicators were broken out into three categories, including alcohol, marijuana and hard drug use, and separate frequency variables were created for each. The hard drug use variable score was computed by summing the frequency (1-5) of use for 7 categories of illicit drugs, including stimulants, hallucinogens, opiates, inhalants, depressants, and other hard drugs (e.g., "club" drugs, prescription drugs). Internal consistency of responses was not measured, as there was no expectation that frequency of use of one drug would be associated with the frequency of use of other drugs.

Young adult risk factors.

Partner risk. The partner risk variable is a cumulative risk score ranging from 0 - 3 representing the participant's self-report of their partners' arrest history (any arrest in lifetime, Yes/No), marijuana use (Y/N), and other illicit drug use (Y/N) for any of the participants past partners (up to four), as assessed at the young adult follow-up (wave 8), as developed for a previous study using this analytic sample (Leve, Khurana, & Reich, 2015). The term "partner" was defined to participants as, "including people you have dated, and relationships which have been physically or romantically intimate, within the last 6 months." A score of 0 indicated that no partner had any reported arrest history, marijuana use or illicit drug use. A score of 1 indicated that at least one risk factor was present (a history of arrest, marijuana use, or hard drug use in any partner), a score of 2 indicated that at least 2 of the 3 risk factors were present, and a score of 3 indicated that all 3 risk factors were present. If there was no partner relationship within the past 6 months, a score of 0 was assigned indicating no risk. Internal consistency was not measured, as the three indices were not expected to necessarily be associated with one another.

Substance use: Alcohol, marijuana, and hard drugs. Frequency of drug and alcohol use in young adulthood was measured using self-report data regarding use of difference classes of substances, as gathered from the young adult follow-up assessment. Participants reported how often they had used a variety of substances during the past 6 months on a Likert-type scale ranging from 1 – 5, with 1 = *never*, 2 = *tried once or twice*, 3 = *occasionally*, 4 = *1-6 times per week* and 5 = *one or more times per day*. Substance

use indicators were broken out into three categories, including alcohol, marijuana and hard drug use, and separate variables were created for each. The hard drug use variable included the sum of frequency for 8 types of illicit drugs, including stimulants, hallucinogenics, opiates, "club drugs", inhalants, depressants, prescription, and other hard drugs. Regarding the marijuana frequency of use variable, it demonstrated significant positive skew and was thus transformed to become a dichotomous variable (Y/N), representing whether or not participants indicated any marijuana use, with Yes = 1, No = 0. Internal consistency of responses was not measured, as there was no expectation that frequency of use of one drug would be associated with the frequency of use of other drugs.

Reproductive risk factors. Reproductive risk factors, including age at first pregnancy, age at first birth, and number of children in custody, are described below. The sample size for these variables (n = 110 for both age at first pregnancy and age at first birth, n = 108 for number of children in custody) is notably lower than for other adolescent and young adult variables, as data for these variables were provided only for those participants who had children by the time of assessment.

Age at first pregnancy. Age at first pregnancy was provided by participant self-report and assessed at each time point if first pregnancy had not yet been reported.

Age at first birth. Age at first birth represents the participant's age at birth of first biological child, as provided by participant self-report and assessed at each time point if age at first birth had not yet been reported.

Number of children in custody. Number of children in custody represents the total number of children in the participant's legal custody, gathered via participant self-report at the young adult follow-up time point, which preceded the five time points assessed for maltreatment continuity.

Controls.

Intervention condition. Participants were assigned to one of two intervention conditions, either TFCO (coded as 1) or TAU (coded as 0). Intervention condition was included as a covariate for all models in order to control for any potential intervention effects on MC.

Age at follow-up. Age at follow-up is the participant's age in years at the young adult follow-up assessment. This was included as a covariate in both the young adult risk and reproductive risk models in order to control for the effects of age on maltreatment continuity.

Time to young adult follow-up. As participants were gathered from two different cohorts and recruited on a consecutive basis, time from the baseline adolescent assessment to the young adult assessment varied across participants. This variable was included in the adolescent risk model in order to control for age and time-related effects on maltreatment continuity.

Analytic Plan

Preliminary analysis. An alpha (the Type I error rate) of .05 was used for all statistical tests in the study. All data were screened for missing data and outliers, and normality of distributions of all variables was examined. Descriptive statistics including mean, standard deviation, skew and kurtosis were examined for all study variables, as well as the tenability of assumptions required for the statistical analyses. Little's MCAR test was used to assess whether the data were missing at random or whether a pattern existed. Detailed results of the above are described in Chapter III. Bivariate correlations were examined prior to main analyses to assess for associations between the independent variables, control variables, and dependent variable. In some cases, hypothesized predictor variables that lacked significant correlations with MC were dropped from analyses, if deemed appropriate based on the rationale for their inclusion, in order to preserve power and allow for sensitive detection of other significant effects. For example, as both adolescent and young adult substance use predictors were broken into distinct categories of alcohol, marijuana and hard drug use, only those substances with significant bivariate correlations with MC were included for further analysis. Other predictor variables that lacked significant correlations, however, such as adolescent delinquency and young adult partner risk, were retained for analysis due to the strength of prior research warranting their inclusion.

Main analyses. Hierarchical binary logistic regression was used to regress the dummy codes representing the group contrasts (maltreatment continuity = 1, maltreatment discontinuity = 0) on the hypothesized predictors, including the adolescent,

young adult, and reproductive risk variables as described above. For the regressions, maltreatment continuity served as the target group, and maltreatment discontinuity as the reference group. The regression models are considered binary due to the dichotomous nature of the outcome variable, and hierarchical as the control variables were entered into the model prior to predictor variables. Logistic regression does not make assumptions of linearity, normality, or homogeneity of variance for the independent variables. Logistic regression uses maximum likelihood estimation, an iterative model fit process, to compute the coefficients for the regression.

In logistic regression, an overall model chi-square test is used to assess for the presence of a relationship between the dependent variable and the combination of independent variables, and the Wald statistic is used to assess the relationship of each individual independent variable with the dependent variable. In logistic regression, a significant coefficient for an independent variable indicates that the variable was able to predict group membership, such that the variable meaningfully impacts the likelihood of being in the target group. The beta coefficient (the log value) indicates that a one-unit change in the predictor variable is associated with an increased or decreased probability of belonging to the target group. The odds ratio (OR) is the transformed log value, and it is interpreted to determine the size of this effect, representing the relative probability of belonging to the target group in terms of these decreased or increased odds. An OR greater than one represents an increased likelihood of belonging to the target group, whereas an OR smaller than one indicates a decreased likelihood of belonging to the target group.

Statistical power, the probability that a statistical test will effectively yield statistical significance when the null hypothesis is indeed false for the population from which the sample is drawn, reflects the ability to detect a treatment effect and is a function of sample size, effect size, alpha level, and research design (Lipsey & Hurley, 2009; Shadish, Cook, & Campbell, 2002). For adequate power in logistic regression, the minimum recommended ratio of participants to variables of 10:1 (Hosmer, Lemeshow, & Sturdivant, 2013) was exceeded for all models, and the preferred ratio of 20:1 was exceeded in the adolescent and reproductive risk models.

Three separate logistic regression models were run for the adolescent, young adulthood, and reproductive risk predictors. All variables and their interaction terms were centered prior to use in analyses, to reflect standard deviations from the mean and allow for more straightforward interpretation of coefficients. For each regression model, control variables were entered in the first block, predictor variables in the second block, and any interaction terms in the third block. Interaction terms were included to assess for possible mediating effects that could impact interpretation of main effects results. If interaction effects were not significant, the main effects model block was interpreted. Follow-up analyses were conducted as needed, in some cases running analyses dropping predictor variables or adding interaction terms, for example, based on the examination of the results of initial models; these decisions and each resulting model are described in Chapter III, Results.

CHAPTER III

RESULTS

All analyses were conducted using IBM SPSS Version 22 (see Appendix for all tables). Table 1 presents the sample size, mean, deviation, and potential and actual range for all variables. More than half the sample (n = 79, 53.7%) demonstrated maltreatment discontinuity (MD), indicating no evidence of maltreatment of offspring, and under half demonstrated maltreatment continuity (MC; n = 68, 46.3%) indicating having either substantiated reports of maltreatment of offspring or self-reported contact with child welfare services regarding a report of maltreatment. The means of adolescent predictors including delinquency, deviant peer association, alcohol use, and marijuana use all fell close to the midpoint of each range and were normally distributed. The mean for adolescent hard drug use, however, was low considering the actual range, although it did not demonstrate excessive skew. For young adulthood risk predictors, marijuana use was dichotomized due to excessive positive skew in the original distribution; in the dichotomous variable, 71 participants reported no marijuana use, and 32 reported marijuana use. Regarding hypothesized reproductive risk factors, at young adulthood follow-up (M = 22.25 years), the mean age at first pregnancy was 16.64, the mean age at first birth was 19.49, and the mean number of children in custody was 1.14.

Table 2 presents Spearman's bivariate correlations for all variables. Spearman's rho nonparametric correlations were used due to the ordinal and/or count-based nature of many of the variables. Inspection of bivariate correlations of MC with the control variables indicated that MC was significantly correlated in a positive direction with age at

young adult follow-up, but did not significantly correlate with the TFCO intervention condition or time in years from the adolescent time point to the young adult follow-up Table 1.

Means, Standard Deviations, Variable Sample Size, and Ranges

Variable (Potential Range)	*n*	*M*	*SD*	Actual Range
1. Maltreatment continuity (MC; 0, 1)	147 No (0) = 79, 53.7% Yes (1) = 68, 46.3%	-	-	0—1
Adolescent Predictors				
2. Adolescent delinquency (0—1)	147	.48	.16	.00—.85
3. Adolescent deviant peers (1—5)	141	2.91	.83	1—4.88
4. Adolescent alcohol use (1—5)	144	3.01	1.40	1—5
5. Adolescent marijuana use (1—5)	144	3.08	1.51	1—5
6. Adolescent hard drug use (7—35)	141	11.21	4.62	7—27
Young Adulthood (YA) Predictors				
7. YA Partner risk (0—3)	133	1.70	.95	0—3
8. YA Alcohol use (1—5)	120	2.44	1.51	1—5
9. YA Marijuana use (0, 1)	103 No (0)= 71 Yes (1) = 32	-	-	0—1
10. YA Hard drug use (8—40)	104	9.42	3.36	8—26
Reproductive Predictors				
11. Age at first pregnancy	110	16.64	2.80	7—23
12. Age at first birth	110	19.49	2.40	8—25
13. Number children in custody	108	1.14	1.33	0—6
Covariates				
14. Intervention condition (0,1)	147 TAU (0) = 76 TFCO (1) = 71	-	-	0—1
15. Time in years to follow-up	136	6.96	3.03	2.80—12.81
16. Age at follow-up	136	22.25	3.20	16.27—29.31

Note. YA = Young adulthood.

time point. Although the TFCO intervention condition was not significantly correlated with any study variables, it was retained as a control variable for all analyses in case of unexamined intervention effects. Due to possible maturation effects and potential increased exposure to child welfare services, both age-related variables were retained for inclusion as control variables for further analyses.

For adolescent risk variables, MC significantly correlated with hard drug use, $p < .05$, but not with alcohol use, marijuana use, deviant peer association, or delinquency. The adolescent substance use variables, deviant peer associations, and delinquency all significantly correlated with one another, with an increase in one risk factor associated with an increase in another. Adolescent alcohol and marijuana use were dropped from further analysis due to lack of correlation with MC, whereas both deviant peer association and delinquency were retained due to prior research of their relation to child maltreatment supporting their inclusion, as well as their significant correlations with adolescent hard drug use.

For the young adult risk variables, marijuana and alcohol use both significantly inversely correlated with MC, $p < .01$ each, indicating that more use was associated with a decreased likelihood of MC. Associations between MC and partner risk and hard drug use were not significant. Hard drug use was excluded from further analysis, while partner risk was retained for inclusion due to substantial prior research indicating the significance of the role of partner factors for predicting MC. Partner risk was associated with marijuana and hard drug use at young adult follow-up, but not with alcohol use. Partner risk was also notably significantly and inversely associated with age at follow-up, $p < .01$, with younger women reporting higher levels of partner risk. Age at follow-up also

had a significant inverse correlation with young adulthood marijuana use, $p < .05$, with younger women reporting more marijuana use. The young adulthood substance use variables were all significantly associated with one another.

For the reproductive risk variables, age at first birth and number of children in custody at young adult follow-up both significantly correlated with MC at $p < .01$ each, with age negatively associated and number of children positively associated, but age at first pregnancy did not significantly correlate with MC. Age at first pregnancy was dropped from further analysis due to lack of correlation with MC and possible multicollinearity with age at first birth ($r = .50$). Notably, age at first birth was also significantly associated with young adulthood alcohol and marijuana use, with women of older age at first birth reporting higher levels of use. Number of children in custody at follow-up significantly inversely correlated with age at first birth, indicating that a younger age at first birth is associated with having more children in custody at follow-up. Similarly, number of children in custody also indicated a significant positive association with age at follow-up, indicating that an increase in age was associated with having a greater number of children. Thus, these reproductive variables showed significant correlations with MC, substance use factors, and age-related factors.

Table 2.

Nonparametric Correlations

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Maltreatment continuity (0, 1)	1.00															
2. Adolescent delinquency	.10	1.00														
3. Adolescent deviant peers	.15	.27**	1.00													
4. Adolescent alcohol use	.14	.45**	.35**	1.00												
5. Adolescent marijuana use	.05	.38*	.34**	.59**	1.00											
6. Adolescent hard drug use	.19*	.45**	.46**	.43**	.52**	1.00										
7. YA Partner risk	.10	.07	-.04	.13	.14	.08	1.00									
8. YA Alcohol use	-.24**	-.06	.13	.19*	.22*	-.01	.08	1.00								
9. YA Marijuana use (0, 1)	-.30**	.01	.13	.23*	.43*	.21*	.33**	.38**	1.00							
10. YA Hard drug use	.00	.00	.10	.27**	.26**	.07	.31**	.23*	.34**	1.00						
11. Age at first pregnancy	-.11	.05	-.17	-.06	.03	-.06	-.13	.02	-.08	-.18	1.00					
12. Age at first birth	-.39**	.01	-.10	-.07	.13	.01	.00	.27**	.22*	-.07	.50**	1.00				
13. Number children in custody (wave 8)	.33**	.00	.00	.08	.04	.08	-.04	.04	-.10	.04	-.24**	-.36**	1.00			
14. Intervention condition (0, 1)	-.08	-.06	.04	-.11	-.07	-.03	-.05	.04	.15	.04	.00	.08	.03	1.00		
15. Time in years to follow-up	.15	.04	.21*	.05	.12	.06	-.36**	.02	-.20*	.03	-.08	-.01	.25**	.07	1.00	
16. Age at follow-up	.17*	-.00	.20*	.06	.13	.11	-.34**	.03	-.21*	.01	.02	.09	.30**	.05	.91**	1.00

Note: Correlations were computed using Spearman's *r*.

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

Other notable bivariate correlations related to substance use and age include those of hard drug use in young adulthood with adolescent risk variables. Hard drug use in young adulthood was not significantly associated with hard drug use in adolescence. However, both hard drug use and marijuana use in young adulthood were significantly positively correlated with earlier alcohol and marijuana use in adolescence, indicating that higher rates of alcohol and marijuana use in adolescence were associated with higher hard drug and marijuana use in young adulthood.

Missing Data

To test study hypotheses, hierarchical binary logistic regression was employed, which uses listwise deletion to exclude cases with missing data on one or more of the variables included in the statistical model. For the models testing the relationship of adolescent risk factors with MC, missing data was moderate at 8.5 % of the sample (22 missing, $N = 125$). For the model testing young adulthood risk factors for MC, there was significant data missing at 31.3% which limited the sample size to $N = 101$ (46 missing). For the model testing reproductive risk factors for MC, of the analytic sample of 110 participants who had children by young adulthood follow-up, 4 did not complete the young adulthood follow-up, and were thus excluded from the analysis due to missingness on follow-up variables, bringing the sample to $N = 106$ for this model. Missingness for this model was low at 3.6%.

Identified reasons for missing data included lack of participation in the young adulthood follow-up time point and/or missing data on marijuana or hard drug use. Reasons for attrition at follow-up are not known; 19 of the 147 participants did not complete the young adulthood time point and were excluded from analyses. Additionally,

a number of participants at both the adolescent and young adulthood follow-up time points were not asked any questions related to marijuana or hard drug use, thus a number of study substance use items were excluded. Study protocol indicated that participants who were pregnant at the time of interview were not to be asked drug use questions out of concern for reporting, which likely contributed to this loss.

Little's test of missing data (Little, 1988) was conducted with all variables; results indicated that data was missing completely at random (MCAR), χ^2 (152) = 177.23, p = .08. However, despite the test results indicating lack of pattern to the missing data, given knowledge regarding reasons for missingness as described above and the potential for undetected patterns, it was decided not to impute missing data in order to avoid introducing further bias to the sample. Thus, the sample in two of the three models used a reduced *N*.

Logistic Regression Analyses

Hierarchical binary logistic regression was used to test each of the three study hypotheses, regressing maltreatment continuity on a range of predictors. All quantitative, non-dichotomous variables were standardized prior to analyses. Additionally, all interaction terms in the analyses were created using the product of the standardized variables.

Adolescent risk. The results of two logistic regression models representing maltreatment continuity (MC) regressed on hypothesized adolescent risk factors are shown in Table 3. These models tested Hypothesis 1, which predicted that adolescent risk factors, including delinquency, deviant peer association, and hard drug use would each predict MC, with higher scores on each of the three predictors leading to an increased

likelihood of MC. Regarding power for hierarchical logistic regression, these models exceeded the preferred ratio of participants to variables of 20 to 1 (Hosmer, Lemeshow, & Sturdivant, 2013). There were no significant or influential outliers identified by either model.

Table 3.

Logistic Regression of Adolescent Risk Factors Predicting Maltreatment Continuity (n =125)

	Model 1			*Model 2*		
	B	*SE B*	e^B/OR	*B*	*SE B*	e^B/OR
Intervention condition	-.39	.38	.68	-.37	.37	.69
Time to follow-up	.46*	.21	1.58	.41*	.20	1.50
Delinquency	.14	.22	1.15	-	-	-
Deviant peers	.02	.22	1.02	-	-	-
Hard drug use	.40	.23	1.49	.38*	.19	1.47
Deviant peers x hard drug use	-.01	.26	1.0	-	-	-

Note. OR = Odds ratio. All quantitative predictors were standardized before conducting the regression. Model 1: likelihood ratio test $\chi^2(5) = 13.27$, $p < .05$; Nagelkerke pseudo-$R^2 = .13$. Model 2: likelihood ratio test $\chi^2(3) = 10.47$, $p < .05$; Nagelkerke pseudo-$R^2 = .10$.
*$p < .05$.

In Model 1, intervention condition and time to follow up (measured in years) were entered in the first block as control variables. Hypothesized predictors, including delinquency, deviant peers, and hard drug use, were entered next as main effects, and the product of deviant peers and hard drug use was entered last to assess for a potential interaction effect between the two variables. Examination of the interaction effect block indicated lack of significance, so the main effects were interpreted. The overall likelihood ratio of this model (Model 1) was significant, $\chi^2(5) = 13.27$, $p = .02$, indicating good model fit. At 13%, a relatively small percent of the variance in maltreatment continuity group membership was explained, Nagelkerke pseudo-$R^2 = .13$. As the Nagelkerke indicator is considered a pseudo- R^2 better suited to multiple regression than logistic regression in terms of utility, examination of the accuracy of predicted group classification compared to observed group classification is considered an important indicator of model fit for logistic regression. In the predicted model, the overall classification accuracy rate of 59.2%, which reflects the model's percentage correct of predicted group membership to observed group membership, was significantly improved over the null model (52%), also supporting adequate model fit. This classification accuracy rate indicates the degree to which the hypothesized model accurately predicted MC group membership, compared to observed MC group membership, beyond the rate of chance alone. Together, these indicators support adequate fit of the model to the data.

However, examining the individual contributions of predictors to group membership, only time to follow-up emerged as a significant predictor of maltreatment continuity, $B = .46$, OR = 1.58, $p = .03$, indicating that for every 1 unit increase in time from the adolescent time point to young adulthood follow-up, the odds of being in the

maltreatment continuity group increased by 1.58 times, or 58%. In sum, as this was the only significant predictor of MC, this suggests that the variance explained by the overall model, although small, is likely due to the effects of time.

Due to lack of significance of any hypothesized predictor variables, as well as the significant bivariate correlation between adolescent hard drug use and MC, the interaction term, deviant peer association and delinquency were then dropped from the model for further analysis. Model 2, presented in Table 3, explored the effects of adolescent hard drug use alone on MC, controlling for intervention condition and time to follow-up. The overall likelihood ratio of this model (Model 2) was significant, $\chi^2(3) = 10.47$, $p = .02$, indicating good model fit. At 10%, the variance in MC group explained was small, Nagelkerke pseudo-$R^2 = .10$. The overall classification accuracy rate of 57.2% was significantly improved over the null model (51.9%), supporting adequate model fit. Thus, the overall model fit indicators supported adequate fit to the data, however, the utility of the model may be limited in terms of strength.

Examining individual predictors, time to follow-up remained significant, and adolescent hard drug use also emerged as a significant predictor of MC group membership, $B = .38$, OR = 1.47, $p = .04$, indicating that for every one unit increase in hard drug use in adolescence, the odds of being in the MC group increased by 1.47, or 47%. Although hard drug use emerged as an additional predictor of MC in Model 2 with an odds ratio suggesting a strong effect, comparison of classification accuracy rates and variance in MC group explained suggest that this model did not demonstrate improved model fit over Model 1.

For both adolescent models, the classification accuracy rates indicated that the models were better at predicting accurately the odds of belonging to the maltreatment discontinuity group (Model 1, 67.7%; Model 2, 64.7%), as opposed to the maltreatment continuity group (Model 1, 50%, Model 2, 49.2%). In summary, these results indicate that contrary to study predictions, delinquency and deviant peer associations did not significantly impact the likelihood of MC. In summary, while hard drug use did significantly predict MC as hypothesized, indices of model fit, while adequate, suggest limited practical utility of these findings due to a relatively small strength of effect.

Young adulthood risk. The results of the logistic regression model representing maltreatment continuity regressed on hypothesized young adulthood risk factors are shown in Table 4. This model tested Hypothesis 2, which predicted that young adulthood factors, including partner risk, alcohol use, and marijuana use would each predict MC, with greater scores on each of the three predictors leading to an increased likelihood of MC. Regarding power for logistic regression, this model exceeded the minimum ratio of participants to variables of 10 to 1 (Hosmer, Lemeshow & Sturdivant, 2013), but did not meet the preferred ratio of 20 to 1. The model identified one potentially significant outlier, but it was determined to be not unduly influential and was retained in the analysis. For the initial model, intervention condition and age at young adulthood follow-up were entered in the first block as control variables. Hypothesized predictors, including partner risk, alcohol use, and marijuana use, were entered next as main effects, and the products of partner risk and alcohol use, as well as partner risk and marijuana use, were entered last to assess for potential interaction effects. The interaction effects were not significant, so the main effects model was interpreted.

Table 4.

Logistic Regression of Young Adult Risk Factors Predicting Maltreatment Continuity (n = 101)

	B	*SE B*	e^B/OR
Intervention condition	-.20	.46	.82
Age at follow-up	.60*	.25	1.83
Partner risk	.71**	.27	2.03
Alcohol use	-.31	.24	.73
Marijuana use	-.79**	.28	.46
Partner risk x alcohol use	-.04	.24	.96
Partner risk x marijuana use	.27	.44	1.31
Age at follow-up x marijuana use	-.12	.31	.89

Note. OR = Odds ratio. All quantitative predictors were standardized before conducting the regression. Model likelihood ratio test $\chi^2(5) = 22.20$, $p < .001$; Nagelkerke pseudo-R^2 = .27.
**p < .05. **p < .01.*

The overall likelihood ratio of the model was highly significant, $\chi^2(5) = 22.20$, $p = .00$, indicating strong model fit. At 27%, a moderate amount of the variance in maltreatment continuity group membership was explained, Nagelkerke pseudo-$R^2 = .27$. The overall classification accuracy rate of 67.3% was significantly improved over the null model (57.4%), also supporting good model fit. The classification accuracy rate indicated that the young adulthood model was better at accurately predicting the odds of belonging to the maltreatment discontinuity group (75.9% accurate), as opposed to the maltreatment continuity group (55.8% accurate). These results together indicate that the hypothesized overall model showed strong fit to the data and that the adolescent risk factors together moderately contributed to the odds of MC group membership.

Examining the individual contributions of model predictors to MC group membership, the variables age, partner risk and marijuana use all emerged as significant predictors of MC, whereas alcohol use and intervention condition did not. Age at follow-up significantly predicted MC membership, $B = .60$, OR = 1.83, $p = .02$, indicating that for every 1 unit increase in age in years, the odds of being in the maltreatment continuity group increased by 1.83 times, or 83%. Partner risk significantly and strongly predicted MC membership, $B = .71$, $OR = 2.03$, $p = .009$, indicating that for every 1 unit increase in partner risk, the odds of being in the maltreatment continuity group increased by 103%; alternately stated, this indicates that an increase in partner risk would result in being more than twice as likely to belong to the MC group. Marijuana use also strongly predicted MC group membership, but in the opposite direction, $B = -.79$, $OR = .46$, $p = .009$. This indicates that for every 1 unit increase in marijuana use, which in this case represents any reported use due to the dichotomous nature of the variable, the odds of being in the

maltreatment continuity group decreased by more than half. In other words, participants with marijuana use were 54% less likely to belong to the MC group. To summarize the individual contributions of young adulthood risk factors, higher partner risk and older age were associated with an increased likelihood of MC, whereas any marijuana use was associated with a decreased risk of MC; alcohol use and intervention condition were not significant predictors of MC.

Due to these results regarding the significance of marijuana use and partner risk, as well as due to the significant negative bivariate correlation between age and young adulthood marijuana use, follow-up analyses were conducted to test for possible interaction effects between age and marijuana use for MC. The logistic regression was conducted with age by marijuana use entered as a third interaction term in the third block. The interaction effect of age by marijuana use was not significant, $p = .69$, suggesting that the main effects model should be interpreted and that age and marijuana use both independently contributed to maltreatment continuity, in addition to any shared variance. These results indicate that in of itself, marijuana use contributed to a decreased likelihood of MC, regardless of age. As the main effects model was interpreted, the results of the final logistic regression were the same as those described above.

Reproductive risk. The results of the logistic regression model representing maltreatment continuity regressed on hypothesized reproductive risk factors are shown in Table 5. This model tested the hypotheses that a younger age at first birth and having a greater number of children in custody at follow-up would lead to a greater likelihood of maltreatment of offspring. Regarding power for logistic regression, this model exceeded the preferred ratio of participants to variables of 20 to 1. The model identified one

potentially significant outlier, but it was determined to be not unduly influential and was retained in the analysis. It should be noted that this participant reported an age of first pregnancy of 7, and first birth of 8. It was determined that this was not due to data entry error, and that this was the actual response reported by the participant, and thus retained also for this reason.

Table 5.

Logistic Regression of Reproductive Risk Factors Predicting Maltreatment Continuity (n = 106)

	B	*SE B*	e^B/OR
Intervention condition	-.23	.43	.79
Age at follow-up	.33	.24	1.39
Age at first birth	-.74**	.28	.48
Number of children in custody at follow-up	.28	.28	1.32

Note. OR = Odds ratio. All quantitative predictors were standardized before conducting the regression. Model likelihood ratio test $\chi^2(4) = 15.89$, $p < .01$; Nagelkerke pseudo-R^2 = .19.
***p < .01.*

For this model, intervention condition and age at young adulthood follow-up were entered in the first block as control variables. Hypothesized predictors of MC, including age at first birth and number of children in custody at follow-up were entered next as main effects. The overall likelihood ratio of the model was highly significant, $\chi^2(4)$

=15.89, p = .003, indicating strong model fit. At 19%, a moderate amount of the variance in maltreatment continuity group membership was explained, Nagelkerke pseudo-R^2 = .19. The overall classification accuracy rate of 69.8% was significantly improved over the null model (61.3%), also supporting good model fit. The classification accuracy rate indicated that the reproductive model was better at accurately predicting the odds of belonging to the maltreatment continuity group (84.6% accurate), as opposed to the maltreatment discontinuity group (46.3% accurate), departing from the accuracy rates observed in the adolescent and young adulthood risk models. Together, these results indicate that the hypothesized overall model showed very strong fit to the data and that the reproductive risk factors moderately contributed to the odds of MC group membership.

Examining the individual contributions of predictors of MC group membership, age at first birth was a highly significant predictor, whereas number of children in custody was not. Neither of the control variables, intervention condition or age at follow-up, significantly contributed. As hypothesized, age at first birth strongly predicted MC membership in a negative direction, B = -.74, OR = .48, p =.009, indicating that for every 1 year increase in age at first birth, the odds of being in the maltreatment continuity group decreased by .48, or 52%. Otherwise stated, an older age at first birth is associated with a decreased likelihood of MC, with every one-year increase in age resulting in being about half as likely to belong to the MC group. However, contrary to hypotheses, number of children in custody at follow-up did not predict maltreatment group membership. In sum, these results indicate that with a younger age of having children, there is a greater likelihood of maltreatment of offspring.

Because the sample determining MC included participants both with and without children, which may have introduced bias, follow-up analyses were conducted to assess the potential impact of participants without children on maltreatment continuity across both Hypothesis 1 and Hypothesis 2, which predicted that adolescent risk and young adulthood risk factors would significantly impact MC, respectively. Hypothesis 3, which predicted the impact of reproductive risk factors for MC, only included participants with children, whereas the sample in Hypotheses 1 and 2 included any participant with childhood maltreatment history, regardless of whether they had yet had any children. Conducting the same logistic regression analyses, but only selecting those who had children, the overall significance of the models and individual predictors remained the same, although there were slight changes to coefficients.

Summary

In summary, the results of the analyses of maltreatment continuity regressed on a range of hypothesized predictors produced significant findings, many as predicted, but others surprising. Hard drug use in adolescence predicted MC group membership as hypothesized, with higher hard drug use associated with a greater likelihood of MC, whereas delinquency and deviant peer association did not predict MC. In young adulthood, greater partner risk significantly and strongly predicted MC. Marijuana use in young adulthood also strongly predicted MC, but not in the expected direction: use of marijuana led to a significantly decreased likelihood of falling in the maltreatment continuity group. Levels of alcohol use in young adulthood did not predict MC, contrary to expectation. For both the adolescent and young adulthood models, older age and/or time effects also significantly contributed to MC. Regarding reproductive risk factors,

age at first birth strongly and significantly predicted MC, with a younger age at first birth indicating an increased likelihood of MC; however, having a greater number of children in custody did not predict MC as expected. There were no effects of the intervention condition found across any of the models. There were no significant interaction effects detected among any of the regression models, supporting the strength of the hypothesized main effects of the predictors for MC.

CHAPTER IV

DISCUSSION

This chapter provides a review of the material presented in this dissertation. First, an overview of the study will be provided and the analytic findings interpreted. Next, strengths and limitations of the study will be addressed. Finally, implications for intervention will be discussed, along with suggested future directions for research.

Overview of the Study

The goals of this study were to better understand the various risk factors related to the intergenerational continuity of maltreatment in a high-risk sample of young women with a history of childhood maltreatment, juvenile justice system involvement, and out-of-home care. Adolescent, young adult, and reproductive risk factors were examined for their predictive impact for maltreatment continuity.

Overall, rates of intergenerational MC were high in this sample as compared to previous studies (e.g., Pears & Capaldi, 2001; Thornberry & Henry, 2013), perhaps due to the high-risk, high-adversity nature of the sample, with over 46% of the participants demonstrating MC, based on either substantiated reports or self-reported contact with CWS. Examining rates of MC based on either indicator alone, approximately 40% of this sample had one or more substantiated reports, still a comparatively high rate of MC, and over 31% reported having some contact with CWS. However, these findings indicate that even among a sample of women marked by histories of serious developmental risk, the majority of the women did not demonstrate MC, supporting the argument that while having a history of childhood maltreatment does pose significant risk for intergenerational continuity, it is not deterministic of such an outcome. What, then, are

the developmental correlates that lend risk for MC? How can researchers, clinicians, and public officials better examine and address child maltreatment in order to prevent its perpetuation across multiple generations? This study sought to help answer these questions, adding to the intergenerational transmission literature regarding which factors lend greater probability of maltreatment continuity, across a range of developmental time periods and reproductive milestones.

Adolescent Risk

Consistent with bivariate correlations, the only significant adolescent predictor of MC was adolescent hard drug use; deviant peer associations and delinquency did not predict MC as anticipated, nor did the intervention condition covariate demonstrate effects. Time to follow-up, however, did exert a significant effect on MC group membership; those with a longer time in years between adolescent baseline and young adult follow-up showed a 1.5 times increased likelihood of MC, perhaps due to age-related effects of having a greater amount of time within reproductive years to perpetrate maltreatment.

Adolescent hard drug use significantly predicted MC, demonstrating a 1.47 times increased likelihood of MC. Thus, these results suggest that among those with a history of childhood maltreatment and JJS involvement, using illicit drugs other than marijuana may be a significant marker of risk for future perpetration of maltreatment. The lack of significant interaction between hard drug use and deviant peer association indicates that regardless of deviant peer influence, adolescent hard drug use led to an increased probability of MC. Although these results were significant and the model suggested adequate fit to the data, model fit indices demonstrated a small variance (10%) in MC

likelihood explained, limiting its utility and suggesting that other factors for predicting MC are likely unaccounted for in the model. Other childhood, adolescent, or young adult factors may more powerfully predict MC and warrant further exploration.

The lack of significance of delinquency for predicting maltreatment continuity was particularly surprising, given prior literature supporting the role of delinquency for the intergenerational maltreatment of offspring (e.g., Colman et al., 2010; Thornberry et al., 2014). While delinquency is both a potential consequence of childhood maltreatment and precursor to future maltreatment, in this sample it did not demonstrate intergenerational maltreatment continuity effects. As this sample consists of young women with both a history of childhood maltreatment and JJS involvement, it may be difficult to tease apart the nature of the intergenerational risks, determining whether MC is due primarily to childhood maltreatment history, or to delinquency and JJS involvement. The non-significant delinquency findings point to the importance of childhood maltreatment history itself for predicting MC. Thus, these findings could be interpreted to support the intergenerational impact of a history of childhood maltreatment, above and beyond the risk of future maltreatment due to delinquency and JJS involvement.

Young Adult Risk

The examination of young adult risk factors for perpetrating MC yielded strong and unexpected findings. The overall model demonstrated strong model fit and explained a moderate amount of variance in MC, suggesting that together the variables considered provide a meaningful and useful approach to understanding young adult risk factors for MC. Partner risk, including the partner's criminal arrest history and reported use of

marijuana and other illicit drugs, was found to powerfully predict MC, with an increase in partner risk associated with being more than twice as likely to maltreat. These findings echo a substantial amount of prior research regarding partner relational influences for child maltreatment (e.g., Conger, Schofield & Neppl, 2012; Conger, Schofield, Neppl and Merrick, 2013; Egeland, Jacobvitz, & Sroufe, 1988; Woodward, Fergusson & Horwood, 2002) and its intergenerational continuity (e.g., Dixon et al., 2005; Jaffee et al. 2013), lending further support for the importance of the role of the partner for risk of maltreatment of future generations.

Surprisingly, participant alcohol use in young adulthood did not significantly predict MC, contrary to expectations and prior research pointing to the role of substance use for intergenerational maltreatment (Jaffee et al., 2013; Milner & Chilamkurti, 1991; Schumaker, Slep and Heyman, 2001). As also relevant to the adolescent risk findings, consideration of alcohol use, marijuana use and other illicit drug use separately, instead of substance use as a combined construct, yielded unique findings in this study. These results indicate the importance of examining type of substance for understanding the impact of substance use for MC, as different classes of substances were found to differentially predict MC.

Contrary to hypotheses, young adult marijuana use exerted a powerful effect on the likelihood of MC, but not in the expected direction. It was hypothesized that marijuana use would increase the risk of MC, however, it was found to significantly decrease the risk of maltreating by 56%. As a younger age was also associated with a decrease in MC and with an increase in marijuana use according to significant bivariate correlations, examination of potential marijuana use effects on MC based on age was

warranted. Testing for an interaction effect between age and marijuana use did not yield significant results, suggesting that marijuana use predicted a lower likelihood of MC, regardless of age. Notably, alcohol use also demonstrated a significant negative correlation with MC, surprisingly suggesting that higher levels of alcohol use may have been associated with a decrease in MC; however, the results of the regression did not reveal a significant predictive relationship between young adult alcohol use and MC.

One interpretation of the marijuana use finding has to do with the nature of marijuana use, its behavioral effects, and its use in young adulthood. The intergenerational continuity of child maltreatment has been associated with an aggressive response bias in the mother toward offspring (Berlin, Appleyard, & Dodge, 2011), and a meta-analysis of risk for child maltreatment found parent anger and hyper-reactivity to be one of three factors with the largest effect sizes for predicting physical abuse (Stith et al., 2009). It is possible that in this sample, marijuana use may serve to decrease aggression, which could thus decrease the likelihood of aggression-related maltreatment. Additionally, among adolescents and young adults, studies have found high anxiety sensitivity to be associated with motivations for marijuana use (Comeau, Steward, & Loba, 2001; Kandel & Logan, 1984; Zvolensky et al., 2009), including coping-related motivations associated with distress tolerance (Zvolensky et al., 2009). Participants with a high-risk context and background who use marijuana may be doing so to self-medicate for anxiety, emotion dysregulation, or other distress (Cheng & Lo, 2010; Widom, 1999). Traumatic stress-related anxiety may also play a role in marijuana use among women with a history of childhood maltreatment and other trauma; for example, Posttraumatic Stress Disorder (PTSD) is prevalent among women with a history of childhood sexual

abuse (Widom, 1999). Given its potential anxiolytic effects, marijuana use could be associated with a decreased likelihood of perpetrating violence or maltreatment. Marijuana use, whether as a form of self-medication for mental health problems or for recreation purposes alone, may relate to a decrease in abusive or neglectful parenting behaviors due to these hypothesized factors.

Alternately, from a harm reduction standpoint, given the extremely high-risk, high-adversity nature of this sample, marijuana use may be a safe alternative to use of other harder drugs or alcohol in terms of associated behavioral risk, and the use of marijuana may serve as a proxy for another unexamined protective factor against maltreatment risk. There may be an unseen mediating factor not addressed in this study that further explains the association between marijuana use and lowered MC risk.

As the interaction between partner risk and marijuana use was not significant, this suggests that regardless of levels of partner risk including marijuana use, other illicit drug use, and criminality, the participant's own marijuana use decreased the likelihood of MC. Future examination of partner risk indices separately could be fruitful in order to understand which of the three risk indices lent the most risk for MC; it is possible that marijuana use in the partner poses a decreased risk of MC as was found for the participant, but perhaps the effects of other illicit drug use and/or criminal arrest history had particularly strong predictive power for MC.

As found in the adolescent model and consistent with bivariate correlations, age at young adult follow-up also significantly predicted MC, with an older age increasing the likelihood of MC. This can be understood using the same interpretation as given in discussion of the adolescent findings: that those who are older may have had more time

during their reproductive years to maltreat, increasing the likelihood that they would fall into the MC group.

Reproductive Risk

This sample demonstrated a relatively young mean age at first pregnancy of 16.64 years and mean age of first birth of 19.49 years, consistent with the high-risk nature of the sample. Comparatively, the average age at first birth for U.S. mothers in 2008 was 25 years (Martin et al., 2010). Results of the logistic regression indicated that as expected, age at first birth significantly predicted MC, with an older age at first birth lending a 52% decreased risk of maltreatment of offspring. These findings support prior research regarding associations with younger age at first birth predicting intergenerational maltreatment (Dixon, 2005; Egeland et al., 2002; Strauss, 1994; Thornberry et al., 2014). Contrary to expectations, age at first pregnancy was not significantly associated with MC. These findings suggest that for this high-risk sample, timing of first pregnancy is less important for later maltreatment risk than timing of actual first parenthood; teen pregnancy may be more associated with risky sexual behavior, for example, than maltreatment. It is also possible that earlier average timing of pregnancy in this sample was too distal to exert a direct, main effect for later maltreatment; other mediating factors related to teen pregnancy that were not examined may be at play. Number of children in custody was not a significant predictor for MC, as predicted; while family size has some support in the literature regarding risk for maltreatment (e.g., Dubowitz & Black, 2001; Larrain, Vega, & Delgado, 1997), findings are fewer compared to the substantial research across decades lending evidence for the age at first birth as a critical predictor of child maltreatment.

Notably, whereas in the young adult model, older age at young adult follow-up significantly contributed to increased risk for MC group membership, as an individual predictor in the reproductive risk model it did not, suggesting that timing of first parenthood in terms of age is a particularly important factor for assessing MC risk. The fact that age at first birth was highly significant for predicting MC and age alone was not suggests a powerful effect for an older age at first birth decreasing MC risk. Thus, any contributions of age itself lending risk for MC were no longer meaningful in a model in which age at first birth was also considered.

However, it should also be considered that those with a later age at first birth also likely had less time within the study reporting period for maltreatment of offspring to be measured; in other words, they had less time to exhibit maltreatment than those who had children years earlier. The same argument can be made for why age as a covariate contributed significantly to the adolescent and young adult models: that despite the power of other predictors, an older age lends an increased risk for maltreatment, perhaps due to having had more time and thus opportunity to maltreat. Thus, results of the age-related factors should be interpreted with some caution; a fuller longitudinal assessment period which covers a greater range of reproductive and caregiving years would be helpful for better determining how age-related factors function for MC risk. It is worth noting that regardless of age, young adult factors including partner risk and marijuana use, and age at first birth, all exerted strong effects for the likelihood of MC, supporting the importance of these factors for risk of maltreatment.

Strengths and Limitations of the Study

Strengths of this study included the use of prospective, longitudinal design, allowing for repeated assessments of participants across many adolescent, young adult and reproductive years. Further, assessment of maltreatment continuity was multi-modal, incorporating both official CWS records of substantiated maltreatment, as well as participant self-report of CWS contact. Additionally, this study provides rich data regarding a unique, extremely high-risk sample of female crossover youth, with a history of child maltreatment, CWS involvement, out-of-home care, and JJS involvement.

Limitations of the study include the lack of a comparison sample, such as a matched comparison group of those without any history of childhood maltreatment or JJS involvement. Such a comparison group would lend further confidence that the significant risk factors found in this study are indicative of intergenerational effects. Additionally, the nature of this high-risk sample may not generalize to populations with lower levels of risk and adversity. As the sample was all female, the investigation of the intergenerational transmission of maltreatment is limited to factors related to girls and women; as such, results may not generalize to intergenerational risk for boys who have been maltreated. Further, a larger sample size would lend greater power and confidence in the findings and may have been able to detect other effects. The sample size may have been at least slightly increased (up to $N = 166$), had childhood neglect history for all participants been available. Indeed, neglect is the most prevalent form of substantiated maltreatment. In 2013, 79.5% of victims of child maltreatment experienced neglect whereas 18% experienced physical abuse, 9% had sexual abuse, and 8.7% experienced psychological maltreatment (U.S. Dept. of Health & Human Services, 2013).

Another limitation involves the self-report nature of the partner risk variable, as study participants provided the data regarding their partners' drug use and criminal arrest history; partner self-report and official criminal records may have served as a more accurate representation of partner risk. Also, as previously discussed, participants both with and without children were included for analyses, with those who did not report having any children in custody given a score of 0, indicating maltreatment discontinuity. Restricting the sample to only those who had children would have severely limited the sample size. To assess for potential bias, all logistic regression analyses were conducted again, excluding any participants without children, and all major findings regarding model fit and significance were meaningfully the same, although the coefficients varied slightly. Although this precaution was taken, a more rigorous study would restrict the participant sample where possible to include only those participants with children in custody in order to further prevent the introduction of sample bias.

Related to maltreatment subtype and other maltreatment features, one limitation of the study involves the combined nature of the maltreatment indicator due to the limited sample size and associated statistical power limitations, which did not allow for an examination of which type of maltreatment the participants either perpetrated or experienced in childhood. Despite findings indicating that comorbidity among maltreatment subtypes is common (e.g., Belsky, 1993; Kaufman & Ziegler, 1989), prior research indicates that subtype of maltreatment experienced – e.g., physical abuse, sexual abuse, neglect, or psychological/emotional abuse – has important developmental implications (Knutson, 1995). Distinct risk factors for child maltreatment have been associated with physical abuse versus neglect (Stith et al., 2009), and intergenerational

effects have also been found to depend on maltreatment subtype. For example, Berlin, Appleyard, and Dodge (2011) found that a mother's history of physical abuse directly predicted maltreatment of offspring, while a history of neglect did not. However, Sidebotham et al. (2001) found a maternal history of sexual abuse to be the only subtype with strong intergenerational effects, significantly predicting risk of perpetration of all forms of maltreatment. Other factors such as chronicity, severity, and timing of maltreatment, which also have known associations with differential developmental outcomes (Manly, Kim, Rogosch, & Cichetti, 2001), were not examined in this study.

Further, MC was analyzed dichotomously in the present study; a more continuous measurement of MC may more powerfully and sensitively detect relationships and better represent the reality of the experience of maltreatment on a range of continua (Manly, Cicchetti, & Barnett, 1994; Newcomb & Locke, 2001). The use of CWS contact and official CWS records as evidence of MC may also be limited, as these indicators solely reflect abuse or neglect that has already come to the attention of authorities (Newcomb & Locke, 2001). It could be that the maltreatment discontinuity (MD) group also perpetrated maltreatment, but had not had any contact with CWS and thus any maltreatment perpetration was undetected in this study. There could be unexamined group differences in the sample regarding exposure to surveillance for potential maltreatment (see Widom et al., 2015) that could yield different MC outcomes. For example, utilizing a greater number of service agency or governmental resources may lead to increased surveillance and exposure to mandated reporters of suspected maltreatment, resulting in a greater likelihood of contact with CWS. Further analyses of

potential surveillance effects may provide useful information and support the inclusion of additional covariates.

Implications for Intervention

Clinical or public policy interventions that target substance use, partner relational and reproductive risk factors may be especially fruitful for decreasing the rate of intergenerational MC. Given the findings of this study regarding the role of the partner for MC, interventions that target young adult relational factors, such as making healthy partner choices, and aim to decrease partner risk factors are warranted. Interventions that promote resilience to the effects of child maltreatment and aim to reduce or prevent hard drug use in adolescence may lend protection against intergenerational maltreatment effects. Additionally, given the critical role of age at first birth for predicting MC, interventions that target teens with a history of maltreatment that are at risk for teen pregnancy could promote a focus on supporting and providing resources for intentional family planning. For example, early provision of sex education, availability and affordability of reproductive health services, and intensive prenatal and postnatal support for teen parents could be particularly effective for decreasing rates of MC.

Overall, the less impactful findings of this study regarding adolescent predictors for MC could indicate that more distal factors, such as those in adolescence, exert a weaker influence on intergenerational maltreatment than more proximal factors, such as those in young adulthood. Regarding implications for prevention, this may optimistically indicate that preventive interventions aimed at decreasing rates of intergenerational maltreatment may have success even if implemented just prior or during young adulthood. In other words, intervening during or after adolescence may not be too late for

preventing future maltreatment: interventions geared at young adults with a history of childhood maltreatment may be fruitful for interrupting the cycle of violence.

Not surprisingly, improving the quality of the parent-child relationship has been found to prevent the intergenerational transmission of maltreatment (Brown, 1995), yet there is a dearth of research regarding the actual parenting practices associated with intergenerational MC (Newcomb & Locke, 2001). In addition to the need for future research on the topic, perhaps the most direct pathways for reducing or prevention maltreatment are those that support the development of positive parenting practices among those at risk for maltreatment. Parenting interventions for those with history of childhood maltreatment or who have substantiated records of perpetration are critical for the prevention of abuse and neglect across generations. Programs such as the Nurse-Family Partnership (Olds et al., 2002), Parent-Child Interaction Therapy (PCIT; Eyberg, Boggs, & Algina, 1995), and the Triple P System (Sanders et al., 2008) have all demonstrated substantial impact for reducing rates of child maltreatment (Chaffin et al., 2004; Prinz, Sanders, Shapiro, Whitaker, & Lutzker, 2009; Olds, 2008). Support for the dissemination of these programs at the local, state, and federal level, particularly for those with a history of child maltreatment and JJS involvement, could lead to significant reductions in the intergenerational continuity of maltreatment and attendant detrimental impacts for society.

Recommendations for Future Research

Directions for future research regarding predicting risk for MC include further examination of factors related to the effects of time, substance use, and other potential mediating or covarying factors that were not examined within the purview of this study.

Research is needed to better understand the role of distinct classes of substances for MC, such as hard drug use in adolescence and marijuana use in young adulthood. Replication of this study's findings is needed within a more normative-risk sample and using matched control designs, and further exploration of the unexpected role of marijuana use for decreasing risk of MC is warranted. Additionally, as the variance explained by the models was moderate, other risk or protective factors that were not accounted for may help more fully explain intergenerational maltreatment patterns. The effects of age or time for MC warrant further exploration, and although practically challenging, a much larger time frame of assessment that more fully covers the childbearing and parenting years would be helpful to more thoroughly capture intergenerational maltreatment continuity.

As previously noted, future research regarding risk for the intergenerational continuity of maltreatment could explore other potential mediating mechanisms for increasing the likelihood of maltreatment of offspring, such as maternal mental health. With high rates of mental health disorders found among both girls involved in the JJS (Abram et al., 2003; Lederman et al., 2004) and those with a history of child maltreatment, future studies could assess the impact of mental health correlates for MC in among a crossover youth population. Maternal mental health has been found to play an important role for the risk of maltreating offspring, (Debellis & Thomas, 2003; Kim & Cicchetti, 2006; Pelcovitz et al., 1994; Thompson, 2006; Widom, 1999) and mental health correlates such as depression, PTSD, and other mental illness have been found to serve as important mediating mechanisms for the continuity of maltreatment across generations (Dixon et al., 2005; Pears & Capaldi, 2001). Future examination of mental

health correlates for better understanding risk for intergenerational MC is warranted. Additionally, given the prior literature discussed regarding the impacts of maltreatment subtype and other features such as chronicity, severity and timing, future research could explore the role of more distinct features of maltreatment for their association with developmental risk factors and intergenerational MC.

Conclusion

This study sought to better understand the contribution of adolescent, young adult, and reproductive factors for risk of the intergenerational continuity of maltreatment. Among a high-risk sample of adolescent girls with a history of childhood maltreatment, JJS involvement and out-of-home care, longitudinal assessments 7 to 9 years into young adulthood revealed that hard drug use in adolescence and greater partner risk in young adulthood increased the likelihood of maltreatment continuity, while marijuana use in young adulthood decreased the risk. Additionally, a younger age at first birth was found to predict a greater probability of maltreatment continuity.

It is important to emphasize that although these and other prior findings support the intergenerational continuity theory of child maltreatment, the vast majority of parents who have been maltreated as children do not go on to maltreat their own children. More research is needed to investigate the various protective processes and contextual factors that lend resilience against the negative effects of childhood maltreatment and to help to break the cycle of maltreatment across generations.

APPENDIX A

DEMOGRAPHICS MEASURE

OSLC Relationship Study 2
Demographics A

A. Parent/Guardian Demographics

1. Full Name: _____SS#: __ __ __ - __ __ - __ __ __ __

2. Current Address:_____

_____

3. Current home phone #: __ __ __ - __ __ __ - __ __ __ __

4. What is your relationship to the child participating in this study?

1- bio mother	9- residential staff, male
2- bio father	10- friend of the family
3- step mother	11- parent of child's friend
4- step father	12- other relative (specify _____)
5- grandparent	13- other (specify _____)
6- foster mother	14- adopted mom
7- foster father	15- adopted dad
8- residential staff, female	16- P.O./Court Counselor/Caseworker

5. What is your birth date? __ __ / __ __ / __ __

6. Are you Hispanic or Latino?
   1- Yes
   2- No
   9- Don't Know

7. What is your race? (***Select all that apply***)
   a- White/Caucasian
   b- Black/African American
   c- American Indian/Alaska Native
   d- Native Hawaiian or Pacific Islander
   e- Asian
   f- Other (specify_____)

8. What was the last grade you completed in school? __ __

Do you have a . . . (Circle **Yes** or **No** for each.)

a.	GED?	1- Yes	2- No
b.	High school diploma?	1- Yes	2- No
c.	Some college credits?	1- Yes	2- No
d.	An associate's degree (A.A.)?	1- Yes	2- No
e.	College/university bachelor's degree (B.A., B.S)?	1- Yes	2- No
f.	Graduate or professional degree?	1- Yes	2- No

OSLC Relationship Study 2

Family Demographics B

B. Additional Demographics

1. What is your current marital status?
   1- married
   2- separated/divorced
   3- single
   4- partnered
   5- widowed
   6- other (explain _____)

2. How many times have you been married? ___

3. Are you currently working? (*Circle one*)
   1- Full time
   2- Part time
   3- Not employed (**Skip to Question 7**)

If WORKING:

4. What is your occupation or your job title? (*Please be specific*)

   (__ __ __) _____

5. How many hours a week do you work? ___ ___ hours

6. What shift do you work?
   1- Day
   2- Swing
   3- Graveyard
   4- Variable Shifts

If UNEMPLOYED:

7a. Have you ever been employed? 1-Yes 2-No

b. What was the last job you had? (*Please be specific*.)

   (__ __ __) _____

c. How long have you been unemployed? __ __ years __ __ months

d. What is the main reason you are currently unemployed?

   (__ __) _____

e. Are you currently looking for work? 1-Yes 2-No

8. What is your gross (amount of money earned before taxes are taken out) annual household income (include child support and foster parent payments):

1- less than $4,999	6- $25,000-$29,999
2- $5,000-$9,999	7- $30,000-$39,999
3- $10,000-$14,999	8- $40,000-49,999
4- $15,000-$19,999	9- $50,000-$59,999
5- $20,000-$24,999	10- $60,000+

9. Do any household members receive financial aid? (***Circle all that apply***):

0- No financial aid
1- Food stamps
2- Aid to families with dependent children (ADC)
3- Other welfare (not 2)
4- Medical only (medical card)
5- Low income housing
6- SSI
7- School loans and/or grants
9- Other (describe: _____)

10. Do you live in a:

1- Single-family home
2- Mobile home
3- Duplex
4- Apartment
5- Homeless
6- Other (describe: _____)

11. How many people live in your household including yourself? __ __

12. Have you been hospitalized for mental health reasons in the last year? 1- Yes 2- No

13. Have you been arrested in the last year? 1- Yes 2- No

OSLC Relationship Study 2
Baseline Family and Child Characteristics
Demographics C

A.

1. What is your child's birth date? ___ ___ / ___ ___ / ___ ___
month / day / year

2. What is your child's age as of today __ __ yrs

3. What is your child's social security number? ___ ___ ___ - ___ ___ - ___ ___ ___ ___

4. Is your child Hispanic or Latino?
1- Yes
2- No
9- Don't Know

5. What is his/her race? (***Select all that apply***)
a- White/Caucasian
b- Black/African American
c- American Indian/Alaska Native
d- Native Hawaiian or Pacific Islander

e- Asian
f- Other (specify_____)

B.

Please indicate whether any of the following are true for you, your child or his/her family.

		YES	*NO*	*DON'T KNOW*	*N/A*
1.	*SKIP*				
2.	*SKIP*				
3.	Have your child's parents ever divorced during this his/her lifetime?	1	2	9	8
4.	Does your child have 3 or more siblings or step-siblings?	1	2	9	
5.	Was your child's biological mom ever hospitalized for mental illness?	1	2	9	
6.	Was his/her biological dad ever hospitalized for mental illness?	1	2	9	
7.	Have any of his/her step/adopted parents ever been hospitalized for mental illness?	1	2	9	8
8.	Does your child's biological mom have history of drug or alcohol abuse?	1	2	9	
9	Does his/her biological dad have history of drug or alcohol abuse?	1	2	9	
10.	Do any of his/her step/adopted parents have a history of drug or alcohol abuse?	1	2	9	8
11.	Has your child's biological mom ever been convicted of a crime?	1	2	9	
12.	Has his/her biological dad ever been convicted of a crime?	1	2	9	
13.	Have any of his/her step/adopted parents ever been convicted of a crime?	1	2	9	8
14.	Have any of your child's sibling(s) ever been placed in out-of-home care?	1	2	9	8
15.	Is there any documented physical abuse in immediate family?	1	2	9	
16.	Has there been any history of serious family violence (weapons used or arrested for or victim of; exclude sexual abuse)?	1	2	9	
17.	Is there any documented sexual abuse of your child?	1	2	9	
18.	Is there any documented physical abuse of your child?	1	2	9	
19.	Has your child ever perpetrated sexual abuse; (sexually abused anyone)?	1	2	9	
20.	Was your child adopted?	1	2	9	
21.	Has there been a failed adoption (legal adoption process terminated)?	1	2	9	
22.	Has your child ever attempted suicide?	1	2	9	
23.	Does she have a history of drug abuse or is she a heavy user of drugs?	1	2	9	
24.	Does she have a history of abusing alcohol or is she a heavy user of alcohol?	1	2	9	
25.	Has your child ever been charged for a felony?	1	2	9	
26.	Is your child chronically truant (skip school often)?	1	2	9	
27.	Is she academically below grade/age level (has she ever been held back or does she perform below grade level)?	1	2	9	
28.	Does she have any history of fire setting?	1	2	9	

C.

1. Prior to the most recent referral for placement and excluding detention, how many prior placements

has your child had?

__ __

2. How many times has she been incarcerated in detention? __ __

OSLC Relationship Study
Baseline Family and Child Characteristics

C. Family Characteristics

1. Child's Birthdate __ __ / __ __ / __ __
2. Child's Age as of today __ __ yrs
3. Child's Ethnicity:
   - 1- Caucasian
   - 2- Black
   - 3- American Indian
   - 4- Hispanic
   - 5- Asian
   - 6- Other (specify_____)
4. Number of prior placements -- excluding detention __ __
5. Number of times incarcerated in Skipworth/Detention? __ __

Please indicate whether any of the following apply to your family.

	Family Characteristics	**YES**	**NO**	**DON'T KNOW**
6.	Single parent family -- at present	1	2	3
7.	Child has 3 or more siblings or step-siblings	1	2	3
8.	Child's bio/adopted Mom hospitalized for mental illness	1	2	3
9.	Child's bio/adopted Dad hospitalized for mental illness	1	2	3
10.	Child's bio/adopted Mom convicted of a crime	1	2	3
11.	Child's bio/adopted Dad convicted of a crime	1	2	3
12.	Child's siblings ever placed out of the home	1	2	3
13.	Documented physical abuse in immediate family	1	2	3
14.	Family violence -- weapons used or arrested for or victim of (e.g., murder, shot); exclude sexual abuse	1	2	3
	Child Characteristics			
15.	Documented sexual abuse	1	2	3
16.	Perpetrator of sexual abuse	1	2	3
17.	Adopted	1	2	3
18.	Failed adoption	1	2	3
19.	Attempted suicide	1	2	3
20.	Drug and/or alcohol abuse -heavy user vs. "recreational" user	1	2	3
21.	Chronic truancy	1	2	3
22.	Academically below grade/age level	1	2	3
23.	Fire setting	1	2	3

OSLC RELATIONSHIP STUDY
Race/Ethnicity Update
(Administer to girl one time – 1st interview only)

Next we have a couple of questions about race and ethnicity. Please answer these questions about what you consider to be your race and ethnicity.

1. Are you Hispanic or Latino?

1- Yes
2- No
9- Don't Know

2. And what is your race? **(Mark all that apply with a 1):**

___ 1- White/Caucasian
___ 2- Black/African American
___ 3- American Indian/Alaska Native
___ 4- Native Hawaiian or Pacific Islander
___ 5- Asian
___ 6- Other (specify_____)

End: Thank you

APPENDIX B

CHILD MALTREATMENT HISTORY AND OTHER CHARACTERISTICS:
CASEWORKER REPORT

OSLC Relationships Study
Referral Screening Information

A.

1. Age: __ __

2. Race:
   1 Caucasian
   2 Black
   3 American Indian
   4 Hispanic
   5 Asian
   6 Other (specify)_____

3. Ht. __ft. __ __in.

4. Wt. __ __ __lbs.

5. Referral Source:
   1- DYS, OYA (Juvenile Department, Parole)
   2- SCF
   3- Lane County Mental Health
   4- Other (describe _____)

6. Child's living situation prior to this referral for residential care:
   0- on the run, on the streets
   1- home with both parents
   2- home with mom (and stepfather figure)
   3- home with dad (and stepmother figure)
   4- home with other relative (specify _____)
   5- with foster parents
   6- residential care/treatment, shelter care
   7- psychiatric hospital,
   8- detention, state training school, correctional facility
   9- other (describe _____)

B. **Risk checklist** (circle response for each item):

Family Characteristics		YES	NO	DON'T KNOW
1.	Single parent family -- at present	1	2	3
2.	Current family income below $10,000	1	2	3
3.	Parents divorced during this child's lifetime	1	2	3
4.	3 or more siblings or step-siblings	1	2	3

		YES	NO	DON'T KNOW
6.	Bio/Adopted Mom hospitalized for mental illness	1	2	3
7.	Bio/Adopted Dad hospitalized for mental illness	1	2	3
8.	Bio/Adopted Mom convicted of a crime	1	2	3
9.	Bio/Adopted Dad convicted of a crime	1	2	3
10.	Siblings ever placed in out of home care	1	2	3
11.	Documented physical abuse in immediate family	1	2	3
12.	Family violence -- weapons used or arrested for or victim of (e.g., murder, shot); exclude sexual abuse	1	2	3
Child Characteristics				
13.	Documented sexual abuse	1	2	3
14.	Perpetrator of sexual abuse	1	2	3
15.	Adopted	1	2	3
16.	Failed adoption	1	2	3
17.	Attempted suicide	1	2	3
18.	Drug and/or alcohol abuse -heavy user vs. "recreational" user	1	2	3
19.	Felony charge	1	2	3
20.	Chronic truancy	1	2	3
21.	Academically below grade/age level	1	2	3
22.	Fire setting	1	2	3

C. Placement/Runaway Information

1. Number of prior placements -- excluding detention __ __

2. Has this child ever run away from home/placement? 1 -Yes 2 -No 3 -Don't know

   a. IF YES, How many times? __ __

3. Number of times incarcerated in Skipworth/Detention?

OSLC Relationship Study 2

Referral Screening Information

A. Study Eligibility Criteria

1. What is this youth's current age? __ __

2. What is her date of birth? __ __ / __ __ / __ __

3. What is her SSN? __ __ __ - __ __ - __ __ __ __

4. Has she been arrested in the last year?
   1- Yes
   2- No

5. Has she been adjudicated on any offenses in the last year?
   1- Yes **SKIP Q 6-7 & GO TO Q 8.**
   2- No **GO TO Q 6.**

If NO TO Q 5:

6. Has she ever been adjudicated on any offenses?
   1- Yes
   2- No **SKIP Q 7 & GO TO Q 8.**

If YES TO Q 6:

7. How long ago? __ __ months (must be **>12 months – NOT** in last year)

8. What agency do you work for?
   1- Department of Youth Services (DYS), Juvenile Department
   2- Oregon Youth Authority (OYA)
   3- DHS/Child Welfare
   4- Lane County Mental Health
   5- Other (describe _____)

9. Who will have her case when she goes into placement?
   1- Department of Youth Services (DYS), Juvenile Department
   2- Oregon Youth Authority (OYA)
   3- DHS/Child Welfare
   4- Lane County Mental Health
   5- Other (describe _____)

10. Who will be her counselor/caseworker once she goes into placement?

_____

11. How much time is left in her jurisdiction w/the juvenile court? __ __ months
MAX = 99, but

note actual # mos

12. Is she currently pregnant?
1- Yes
2- No

If YES:
Please tell me a bit about the situation.

_____

_____

13. What is this youth's current living situation?
0- On the run, on the streets
1- Home with both parents
2- Home with mom (and stepfather figure)
3- Home with dad (and stepmother figure)
4- Home with other relative (specify _____)
5- With foster parents – regular/non-treatment
6- Residential care/treatment, shelter care, proctor home, Monitor TFC
7- Psychiatric hospital,
8- Detention, state training school, correctional facility
9- Other (describe _____)

14. What was her living situation prior to that?
0- On the run, on the streets
1- Home with both parents
2- Home with mom (and stepfather figure)
3- Home with dad (and stepmother figure)
4- Home with other relative (specify _____)
5- With foster parents – regular/non-treatment
6- Residential care/treatment, shelter care, proctor home, Monitor TFC
7- Psychiatric hospital,
8- Detention, state training school, correctional facility
9- Other (describe _____)

B. Risk checklist (circle response for each item):

Family Characteristics

	YES	***NO***	***DON'T KNOW***	***N/A***
The following questions are about the youth's biological family and step/adopted parents, if applicable:				
1. Is this youth's family currently a single parent family?	1	2	9	
2. Is this youth's family income currently below $10,000?	1	2	9	
3. Have this youth's parents divorced during this her lifetime?	1	2	9	8
4. Does this youth have 3 or more siblings or step-siblings?	1	2	9	
5. Was this youth's bio mom ever hospitalized for mental illness?	1	2	9	
6. Was this youth's bio dad ever hospitalized for mental illness?	1	2	9	
7. Have any of this youth's step/adopted parents ever been hospitalized for mental illness?	1	2	9	8
8. Does this youth's bio mom have a history of drug or alcohol abuse?	1	2	9	
9 Does this youth's bio dad have a history of drug or alcohol abuse?	1	2	9	
10. Do any of this youth's step/adopted parents have a history of drug or alcohol abuse?	1	2	9	8
11. Has this youth's bio mom ever been convicted of a crime?	1	2	9	
12. Has this youth's bio dad ever been convicted of a crime?	1	2	9	
13. Have any of this youth's step/adopted parents ever been convicted of a crime?	1	2	9	8
14. Have any of this youth's sibling(s) ever been placed in out of home care?	1	2	9	8
15. Is there any documented physical abuse in immediate family?	1	2	9	
16. Has there been any history of serious family violence (weapons used or arrested for or victim of; exclude sexual abuse)? *"**serious family violence"*** =	1	2	9	

	DON'T

Child Characteristics	***YES***	***NO***	***KNOW***
The following questions are about the youth:			
17. Is there any documented sexual abuse of TC?	1	2	9
18. Is there any documented physical abuse of TC?	1	2	9
19. Has TC ever been a perpetrator of sexual abuse?	1	2	9
20. Was TC adopted?	1	2	9
21. Has there been a failed adoption (legal adoption process terminated)?	1	2	9
22. Has TC ever attempted suicide?	1	2	9
23. Any history of drug abuse or of being a heavy user of drugs?	1	2	9
24. Any history of abusing alcohol or of being a heavy user of alcohol?	1	2	9
25. Has TC ever been charged for a felony?	1	2	9
26. Is TC chronically truant (TC skips school often)?	1	2	9
27. Is TC academically below grade/age level (has she ever been held back or does she perform below grade level)?	1	2	9
28. Any history of fire setting?	1	2	9

C. Placement/Runaway Information

Please indicate actual # or best guess, not a range or '# # +'.

1. Prior to this referral and excluding detention, how many prior placements has this youth had? __ __

2. How many times has she been incarcerated in detention? __ __

3. Has this youth ever run away from home or a placement?
   1- Yes
   2- No
   9- Don't know

   IF YES:
   4. How many times? __ __

APPENDIX C

MALTREATMENT CONTINUITY SELF-REPORT MEASURE

C10e-C50e **Who has <u>legal</u> custody of [Child 1 name], [Child 2 name], [Child 3 name]… ?**

1 – Both bio parents (joint custody)
2 – Bio mom has sole (full) custody
3 – Bio dad has sole custody
4 – Other relative (specify: _____)
5 – Other (specify: _____)
6 – Don't know
7 – State (SCF, DHS, Child Welfare)

***C11a–C51a** **Did you have contacts with child welfare regarding any of your children in the last 6 months? Which children ?**

1 Yes [continue to next question]
2 No [f no contacts, for any child, **skip to C12**]

8 Declined to answer

Interviewer complete C01a below on your own:

C01a Any contacts for any child (C11a – C51a) above since your last interview? (If any YES to contacts with Child Welfare for any child above, answer 1.)

__ 1-Yes

CHANGE in FORMAT: NOW YOU ARE ASKING ABOUT <u>ALL THE CHILDREN LISTED ABOVE, TOGETHER AS A GROUP</u> (cumulative, total…)

Thinking about all your children together……

C01b How many contacts (with child welfare) since your last interview? # Contacts: __ __
[Contacts = meetings, calls, visits because TC and/or partner are being investigated or visited by child welfare… for <u>all children together</u>]
Exception: TC is parenting / taking care of other children and child welfare is involved, but not because of TC, because of other children's parents' behavior; ie "I havfe my sister's kids while DHS is investigating her and DHS is contacting me and meeting with me" – this does not go on the SUS.)

C01c-C01i What type of contact and how many times for each type? **Listen and gather more info if needed.**
[These are total contacts for all children combined]. For each type of contact (for any or all children), write the number of times this type of contact occurred since your last interview; dot any not used]

Note: DHS-Child Welfare has an investigative unit with investigative workers that follow up on reports, and do investigations, ask questions, visit homes, talks to people. It also has an ongoing unit in which a case is opened, a caseworker is assigned, and something starts – either visits, classes, meetings, and other requirements as determined by judge or DHS-CW. If participant has a caseworker assigned to her, then it is likely an open case with child welfare, whether participant understands it as such, or not. TC may not know whether she is being investigated for a new report or an old report. Try to establish whether this is the first time through this particular process or whether she has gone through a similar process before for something similar, whether there was a caseworker assigned to her, or whether her regular caseworker did the investigation. If in doubt, take notes.

c. __ __new report of abuse/neglect , an investigation of this report, or a follow up to this new report

d. __ __ previous (old) report of abuse/neglect: follow up or another investigation on a previous report (previously investigated)

e. __ __ session with child welfare caseworker: could be regular / ongoing (ex. drug cases uses meet wkly, abuse might be monthly, varies)

f. __ __ class provided by agency: could be regular or ongoing

g. __ __ Visitation with child/ren (supervised)

h. __ __ Other (specify _____)

i. __ __ Other (specify _____)

TC calling caseworker does not count as a contact.

Now some more general questions:

C04a [Interviewer just mark on answer sheet: Does TC have any living biological children (currently parenting or not) except denied or adopted
OR any stepchildren that she is living with who are 17 or under, OR any other children whom TC has been parenting since your last interview ?

NOTE: If you have filled in ANY children on the SUS so far, this will be 'yes'.

1 Yes
2 No

C04b __ __ # of Children **(NOTE: This is the number of children present on the SUS – for data purposes)**

C05 Do you have an open case with child welfare?

1 Yes
2 No
8 Declined to answer
9 Don't know

APPENDIX D

CRIMINAL REFERRALS SELF-REPORT MEASURE

OSLC RELATIONSHIP STUDY
Arrest Information and Location Questionnaire
(Administer to girl at each interview, and to her Partner)

[Assessor]: Now, I'd like to gather some information about your arrest record.

00. Since the last time we talked to you, which was around __ __ / __ __ / __ __ (date of last interview), have you been arrested?
1 – yes 2 – no *(If no, stop here.)*

00a. How many times? __ __

01a-c. Starting with the most recent arrest, can you tell me the city and state you were in (and the county, if you know it)?
d. When was that (what month/year)?
e. What did you get arrested for/charged with?

a. City b. State c. County d. Month/ Year e. Arrest/charge

01a. _____ b. ___ ___ c. _____ d. __ __ / __ __
e. _____

02a. _____ b. ___ ___ c. _____ d. __ __ / __ __
e. _____

03a. _____ b. ___ ___ c. _____ d. __ __ / __ __
e. _____

04a. _____ b. ___ ___ c. _____ d. __ __ / __ __
e. _____

05a. _____ b. ___ ___ c. _____ d. __ __ / __ __
e. _____

06a. _____ b. ___ ___ c. _____ d. __ __ / __ __
e. _____

07a. _____ b. ___ ___ c. _____ d. __ __ / __ __

e. _____

08a. _____ b. ___ ___ c. _____ d. __ __ / __ __

e. _____

09a. _____ b. ___ ___ c. _____ d. __ __ / __ __

e. _____

10a. _____ b. ___ ___ c. _____ d. __ __ / __ __

e. _____

11a. _____ b. ___ ___ c. _____ d. __ __ / __ __

e. _____

THE END.

APPENDIX E

ELLIOTT DELINQUENCY SCALE

The following questions deal with your behaviors that could get you into trouble with the police. Remember that all answers are confidential. We do need truthful answers to each of these questions. I'll read a series of behaviors to you. Please give me your best estimate of the exact number of times you've done each thing during the past 6 MONTHS.

(**INTERVIEWER:** RECORD A SINGLE NUMBER, NOT A RANGE, AND "0" IF RESPONDENT NEVER ENGAGED IN A BEHAVIOR)

How many times in the past 6 MONTHS have you:

1.	purposely damaged or destroyed property belonging to your parents or other family members?	__ __ __
2.	(IF IN SCHOOL) purposely damaged or destroyed property belonging to a school, college, or university?	__ __ __
3.	(IF WORKING) purposely damaged or destroyed property belonging to your employer?	__ __ __
4.	purposely damaged or destroyed other property that did not belong to you, not counting family, school, or work property?	__ __ __
5.	stolen or tried to steal a motor vehicle such as a car or motorcycle?	__ __ __
6.	stolen or tried to steal something worth more than $50?	__ __ __
7.	knowingly bought, sold, or held stolen goods or tried to do any of these things?	__ __ __
8.	purposely set fire to a building, a car, or other property or tried to do so?	__ __ __
9.	carried a hidden weapon other than a plain pocket knife?	__ __ __
10.	stolen or tried to steal things worth $5 or less?	__ __ __
11. *	attacked someone with the idea of seriously hurting him or her?	__ __ __ *
12.	been paid for having sexual relations with someone?	__ __ __
13.	paid someone to have sexual relations with you?	__ __ __
14. *	been involved in gang fights?	__ __ __ *
15.	used checks illegally or used phony money to pay for something? (INCLUDES INTENTIONAL OVERDRAFTS)	__ __ __
16.	sold marijuana or hashish? ("POT," "GRASS," "HASH")	__ __ __

How many times in the past 6 MONTHS have you:

17.	hitchhiked where it was illegal to do so?	__ __ __

18.	stolen money or other things from your parents or other members of your family?	__ __ __
19.	(IF WORKING) stolen money, goods, or property from the place where you work?	__ __ __
20. *	had or tried to have sexual relations with someone against their will?	__ __ __ *
21. *	(IF IN SCHOOL) hit or threatened to hit a teacher, professor, or other school staff?	__ __ __ *
22. *	hit or threatened to hit one of your parents?	__ __ __ *
23. *	(IF IN SCHOOL) hit or threatened to hit other students?	__ __ __ *
24. *	(IF WORKING) hit or threatened to hit your supervisor or other employee?	__ __ __ *
25. *	hit or threatened to hit anyone else (other than teachers, students, parents, persons at work)?	__ __ __ *
26.	been loud, rowdy, or unruly in a public place--disorderly conduct?	__ __ __
27.	sold hard drugs such as heroin, cocaine, and LSD? (TOTAL FREQUENCY OF ALL HARD DRUG SALES, NOT LIMITED TO THESE THREE DRUGS)	__ __ __
28.	tried to cheat someone by selling them something that was worthless or not what you said it was?	__ __ __
29.	taken a vehicle for a ride or drive without the owner's permission?	__ __ __
30.	bought or provided liquor for a minor?	__ __ __
31. *	(IF IN SCHOOL) used force or strong-arm methods to get money or things from other students?	__ __ __ *
32. *	used force or strong-arm methods to get money or things from people? (**If in school: not including other students**)	__ __ __ *
33.	avoided paying for such things as movies, bus rides, and food?	__ __ __
34.	been drunk in a public place?	__ __ __
35.	stolen or tried to steal things worth between $5 and $50?	__ __ __
36.	(IF IN SCHOOL) stolen or tried to steal something at school or on campus?	__ __ __

How many times in the past <u>6 MONTHS</u> have you:

37.	broken or tried to break into a building or vehicle to steal something or just to look around?	__ __ __
38.	begged for money or things from strangers?	__ __ __
39.	failed to return extra change that a cashier gave you by mistake?	__ __ __
40.	used or tried to use credit cards without the owner's permission?	__ __ __
41.	made obscene telephone calls (such as calling someone and saying dirty things)?	__ __ __
42.	snatched someone's purse or wallet or picked someone's pocket?	__ __ __
43.	embezzled money, [that is, used money or funds entrusted to your care for some purpose other than that intended?]	__ __ __
44. *	used force or threat of force to rob a person, store, bank or other business establishment?	__ __ __ *
45.	burglarized a residence, building, house, business, or warehouse?	__ __ __

APPENDIX F

DEVIANT PEER ASSOCIATIONS MEASURE

(Baseline) ***Now I'm going to ask you about all of your friends' behavior in the past YEAR. Tell me the answer that best describes how many of your friends have done each thing.***

(Annual) ***Now I'm going to ask you about all of your friends' behavior in the past 6 MONTHS. Tell me the answer that best describes how many of your friends have done each thing.***

All of them	Most of them	Some of them	Very few them	None of them	N/A
5	4	3	2	1	8

During the past YEAR/6 MONTHS, how many of your friends have...

		All	Most	Some	Very few	None	N/A
4.	Cheated on school tests?	5	4	3	2	1	8
5.	Ruined or damaged something on purpose that did not belong to them?	5	4	3	2	1	8
6.	Stolen something worth less than $5.00?	5	4	3	2	1	8
7.	Hit or threatened to hit someone?	5	4	3	2	1	8
8.	Broken into someplace like a car or building to steal something?	5	4	3	2	1	8
9.	Sold drugs?	5	4	3	2	1	8
10.	Stolen something worth more than $50?	5	4	3	2	1	8
11.	Suggested that you do something that was against the law?	5	4	3	2	1	8
12.	Got drunk once in awhile?	5	4	3	2	1	8
13.	Sold or given alcohol to other kids your age?	5	4	3	2	1	8
14.	Shoplifted?	5	4	3	2	1	8
15.	Drove someone's car without permission?	5	4	3	2	1	8
16.	Belonged to a gang	5	4	3	2	1	8
17.	Hitchhiked?	5	4	3	2	1	8
18.	Taken rides with a stranger?	5	4	3	2	1	8
19.	Could have gotten into trouble with the police for some of the things they do?	5	4	3	2	1	8
20.	Tried to get even by turning other friends against you?	5	4	3	2	1	8
21.	Ignored or stopped talking to you?	5	4	3	2	1	8
22.	Tried to keep certain people from being in your group of friends?	5	4	3	2	1	8
23.	How many of your friends could have gotten arrested for things they've done in the						

	last ***YEAR/6 MONTHS***?	5	4	3	2	1	8
24.	Are sexually active?	5	4	3	2	1	8
If "A few" or more:							
25.	Usually have unprotected sex?	5	4	3	2	1	8
26.	Have had sex with someone they just met?	5	4	3	2	1	8
27.	Have either gotten pregnant or gotten someone pregnant?	5	4	3	2	1	8
28.	Have had a sexually transmitted disease?	5	4	3	2	1	8

APPENDIX G

SUBSTANCE USE QUESTIONNAIRE

Now I'm going to ask you some questions about tobacco, alcohol, and drugs. If you have used any of these things, try to remember how many times you did it in the past 6 MONTHS, so since last (month)

Tobacco

(Baseline) 1. Have you ever used tobacco?
1- Yes
2- No **(**GO to **Q8)**

2. How old were you the first time you used tobacco? ___ ___ years

3. Who were you with? ***Select all that apply***
a. Parent(s)
b. Siblings
c. Other relatives
d. Peers, friends
e. Other (_____)

(Annual start here)

4. Have you smoked cigarettes or chewed tobacco in the last **6 MONTHS**?
1- Yes
2- No **(Baseline:** GO to **Q8)** **(Annual:** GO to **Q11)**

If YES:

5. How many days have you smoked cigarettes or chewed tobacco, in the **6 MONTHS**?
___ ___ ___ #

6. Do you currently smoke cigarettes or chew tobacco, or would you if you could?
1- Yes
2- No (GO to **Q8)**

If YES:

7. How many cigarettes do you smoke a day (Would you smoke if you could)?
__ __ __ #

Beer, Wine and Hard Liquor

(Baseline) 8. Have you ever drank beer, wine or hard liquor?
1- Yes
2- No **(**GO to **Q29)**

9. How old were you the first time you drank beer, wine or hard liquor? ___ ___ years

10. Who were you with? ***Select all that apply***
a. Parent(s)
b. Siblings
c. Other relatives
d. Peers, friends
e. Other (_____)

(Annual start here)

11. Did you drink beer, wine or hard liquor in the last **6 MONTHS**?

1- Yes
2- No **(Baseline:** GO to **Q29)** **(Annual:** GO to **Q32)**

If YES:

12. How many times did you drink beer, wine or hard liquor in the last six months? __ __ __#

All Alcohol:

13. Thinking about the time you spent outside of detention or lock-up, have you had at least two whole beers, glasses of wine or hard liquor "drink" in last **6 MONTHS**?

1- Yes
2- No **(Go to Q15)**

If YES

14. When you drink alcohol, do you usually get drunk? Would you say:

0 - Not at all
1 - A little drunk
2 - Quite drunk
3 - Very drunk

15. (*Thinking about the time you've spent outside of detention or lock-up*) How would you describe the way you drank alcohol over the past **6 MONTHS**?

Card #21

0- Never
1- Drank alcohol only a few times during the past **6 MONTHS**

IF Q15 = 0 OR 1 SKIP TO: (Baseline: GO to **Q29)** **(Annual:** GO to **Q32)**

2- Drink regularly for a few weeks or more, then don't for a few weeks or more
3- Drink about once a month
4- Drink on weekends or mostly weekends
5- Drink daily or almost daily
6- Other (specify): _____

16. Thinking about all types of alcohol, like beer, wine, or hard liquor, how many drinks do you usually have at one time?

___ ___ . ___# (If range, take an average)

17. About how much time would you usually take to drink that?

___ ___hours ___ ___ minutes

18. Has there been a week in the last **6 MONTHS**, not counting detention or lock-up, when you didn't drink any alcohol at all?

1- Yes **(**GO to **Q20)**
2- No

IF NO:

19. (So you have drank alcohol at least once every week…) What is the least number of drinks you drank in a whole week?

___ ___ . ___# drinks (less than one drink = 0.5)

20. Has there been a month in the last **6 MONTHS**, not counting detention or lock-up, when you didn't drink alcohol at all?

1- Yes

2- No **(**GO to **Q22)**

If YES:

21. Why did you not drink that/those month(s)?
    a. (___ ___) _____
    b. (___ ___) _____
    c. (___ ___) _____

22. What is the largest number of drinks you had, on at least 2 different days/occasions in the last **6 MONTHS**?
    ___ ___ . ___# drinks (less than one drink = 0.5)

23. How many days did you drink that amount?___ ___ ___ # days

24. How long does it usually take you to drink that amount?
    ___ ___hours ___ ___ minutes

25. During the last 2 weeks, have you had three drinks in a row?
    1- Yes
    2- No **(Baseline:** GO to **Q29) (Annual:** GO to **Q32)**

If YES:

26. How many times? ___ ___ # times.

27. Think back over the last 2 weeks. Have you had five drinks in a row?
    1- Yes
    2- No **(Baseline:** GO to **Q29) (Annual:** GO to **Q32)**

If YES:

28. How many times? ___ ___ # times.

Marijuana

(Baseline)

29. Have you ever smoked pot?
    1- Yes
    2- No **(**GO to **Q42)**

30. How old were you the first time you smoked pot? ___ ___ years

31. Who were you with? ***Select all that apply***
    a. Parent(s)
    b. Siblings
    c. Other relatives
    d. Peers, friends
    e. Other (_____)

(Annual start here)

32. Have you smoked pot in the last **6 MONTHS**?
    1- Yes
    2- No (GO to **Q42)**

If YES:

33. How many times (occasions) have you smoked pot in the last **6 MONTHS**? __ __ __#

34. Would you say you've smoked pot at least one time a month?
    1- Yes
    2- No

35. When you smoke pot, how high do you get? Would you say:

0- Not at all
1- A little high
2- Quite high
3- Very high

36. (*Thinking about the time you've spent outside of detention*) How would you describe the way you smoked pot over the last **6 MONTHS**?

Card #21

0- Never (GO to **Q42)**
1- Smoked only a few times during the past **6 MONTHS (**GO to **Q42)**
2- Smoke regularly for a few weeks or more, then don't for a few weeks or more
3- Smoke about once a month
4- Smoke on weekends or mostly weekends
5- Smoke daily or almost daily
6- Other (specify): _____

37. In the last **6 MONTHS**, have you ever gone to school or work when you were high on marijuana?

1- Yes
2- No

38. (*Thinking about the time you've spent outside of detention*) Has there been a week in the last **6 MONTHS** when you haven't smoked pot at all?

1- Yes **(**GO to **Q40)**
2- No

IF NO:

39. (So you have smoked at least once every week…) What is the least number of times you smoked in a whole week?

___ ___# times smoked

40. Has there been a month in the last **6 MONTHS**, not counting detention or lock-up, when you haven't smoked pot at all?

1- Yes
2- No **(**GO to**Q42)**

If YES:

41. Why did you not smoke that/those month(s)?

a. (___ ___) _____
b. (___ ___) _____
c. (___ ___) _____

Other Drugs

ALL GIRLS:

Now we are going to talk about other drugs you might or might not have taken. I'm going to have you read a set of cards. On each one, you will see drugs that you can get from a doctor or a store and that are also are considered "street" or "illicit" drugs. Right now, we only want to know about drugs that were not prescribed to you. In other words, if you took a drug that is typically prescribed to people but was not prescribed to you, please tell us about it here. We will ask about medicines and drugs prescribed to you in the next section. If you know the category but not the name you can use the "don't know option", if you don't know the category, just let the interviewer know.

Continue for BASELINE:

As you look at each cards, I'm going to ask you if you have EVER used any of the drugs on the card; how old you were when you first used them; and then if you have used them in the last 6 MONTHS.

Continue for 12 MONTH/24 MONTH INTERVIEW:

As you look at each cards, I'm going to ask you if you used any of the following drugs in the last 6 MONTHS.

Please start with CARD A.

USE CARDS A – H

42. CARD A, Hallucinogens
43. CARD B, Inhalants
44. CARD C Over-the-counter drugs (except diet pills)
45. CARD D, Stimulants
46. CARD E, Opiates
47. CARD F, Depressants (Downers)
48. CARD G, Club Drugs (Designer Drugs)
49. CARD H, Other

(Baseline) a. Have you ever used any of the drugs listed on this card?

1- Yes
2- No (GO to **Next Card**)

b. How old were you the first time you used any of these drugs? ___ ___

(Annual start here)

c. Have you used any of these drugs in the past **6 MONTHS**?

1- Yes
2- No (GO to **Next Card**)

If C = YES, Ask D & E For Up To Five Drugs -

d. What did you use? (__ __)

_____

[Interviewer, use 98 for don't know

name/category

e. How many days did you use this drug in the past **6 MONTHS**, not including detention? __ __ __ # days

GO TO NEXT CARD.

ONCE ALL CARDS ARE COMPLETED:

50. **INTERVIEWER: Were any drugs on any of the cards used in the last 6 MONTHS?**

1- Yes
2- No (GO to **Q56**)

If YES:

51. How would you describe the way you take drugs over the past **6 MONTHS**?

Card #21

0- Never
1- Used drugs only a few times during the past **6 MONTHS**

2- Use drugs regularly for a few weeks or more, then don't for a few weeks or more
3- Use drugs about once a month
4- Use drugs on weekends or mostly weekends
5- Use drugs daily or almost daily
6- Other (specify): _____

52. Have you injected any drugs in the past **6 MONTHS**? How many times would you say?

___ ___ ___# (If no times, enter zeroes)

If 1 or more times:

53. Have you ever shared needles with others?
1- Yes
2- No

If YES:

54. How many times in the past **6 MONTHS**? __ __ __ #

55. With whom? (***Select all that apply***)
a. Stranger
b. Acquaintance
c. Friend
d. Family member
e. Romantic partner
f. Other (specify _____)

Now a couple of questions about RIGHT NOW, during this interview. Remember, everything you share is confidential and voluntary. We are not going to stop the interview because of how you answer a question.

56. Are you under the influence of any drugs or alcohol right now?
1- Yes
2- No

If YES, what?

57. (__ __)

58. (__ __)_____

Prescription Drugs/Medications

Now I'd like you to think about any drugs or medications that you might have taken in the **last 6 months** that were prescribed to you by a doctor.

59. Have you had any drugs prescribed to you in the **last 6 months** or have you been taking medications in the **last 6 months** that were prescribed to you by a doctor?
1- Yes
2- No (**GO to Section K**)

If YES, for each drug/med prescribed:

Prescribed Medication #1

60a. What medication was prescribed to you? (__ __)_____

b. Why was it prescribed? ***(probe for detail)*** (__ __)_____

c. How many days did you use this drug in the past **6 MONTHS**? __ __ __ # days

d.	Did you ever take more than you were supposed to or taken it in order to get high?	1- Yes	2- No	

Repeat for Up to 10 Prescribed Medications:

Medication #2:	61a- 61d	Medication #7:	66a- 66d
Medication #3:	62a- 62d	Medication #8:	67a- 67d
Medication #4:	63a- 63d	Medication #9:	68a- 68d
Medication #5:	64a- 64d	Medication #10:	69a- 69d
Medication #6:	65a- 65d		

How often have you used _____ in the past year?

	Card 6	1 or more times a day	1-6 times a week	Occasionally	Tried once or twice	Never
1.	tobacco?	5	4	3	2	1
2.	marijuana?	5	4	3	2	1
3.	alcohol?	5	4	3	2	1
4.	any other drugs?	5	4	3	2	1

If YES, (ask the whole list)
If NEVER skip to page 17

a.	Cocaine, crack	5	4	3	2	1
b.	Uppers/speed: Crank, Crystal, Meth, MMDA, X, Ecstasy, Ritalin, Dexidrine, Benzedrine	5	4	3	2	1
c.	Psychedelics: LSD, Acid, Mushrooms, PCP, Angel Dust	5	4	3	2	1
d.	Inhalants: Glue, Paint, Gas, Whippets, Poppers, Locker Room	5	4	3	2	1
e.	Opiates: Heroin, Morphine, Opium,Methadon, Codeine, Percodan,Darvon	5	4	3	2	1
f.	Downers/Tranquilizers: Quaaludes, Barbiturates, Seconal, Goof Balls, Valium	5	4	3	2	1
g.	Over the Counter:					

Vivarin, Bendryl, No-Doz, Percogisic, Dramamine	5	4	3	2	1
h. Other (specify) _____	5	4	3	2	1

APPENDIX H

PARTNER RISK QUESTIONNAIRE

D. RELATIONSHIPS

I'd like to ask you a few questions about your romantic relationships, including people you have dated, and relationships which have been physically or emotionally intimate, during the last 6 MONTHS.

- If there was **a partner (See Marital HX) at the last interview**, start with D01. Use information from MARITAL HISTORY to guide you in asking the questions.
- If no romantic partner at last interview **OR** if this is the 1st telephone interview, skip to D03.

CI4. DID TC HAVE A CURRENT ROMANTIC PARTNER AT LAST INTERVIEW? ***See Marital HX sheet***

1-YES
2-NO (SKIP TO D03a)

CI5. What was the name of TC's partner at last interview? _____

According to our interview information, the last person you told us about being in a relationship with was _____.

D 01. Are you still with / seeing (**pre-fill name**): _____?

1- Yes *skip to D03*
2- No

If NO:

D 02. When did you break-up? __ __/ __ __ /__ __

month / day / year

Current and Other Partners

ASK ALL:

D03a. Are you **currently** involved with / seeing anyone? 1-Yes 2-No

D03b. Have you had any [other] romantic relationships in the last 6 months?

(i.e., Did you have any other current relationships or any relationships that are not current – had them in the last 6 months ?*)*

1- Yes
2- No **If NO Relationships, enter 00 in D04 and then skip to D09.**

D 04. How many people in total have you been involved with in the last 6 months?
__ __ (ALL people, including current and any others)

READ: What are the names of people that you have been involved with, starting with the current person, or the most recent person, and working backwards ? Remember that this is just for the past 6 months.

INTERVIEWER: Fill in the names of all of the partners TC lists.

Put current person's name 1st in D05a.
Put next most recent partner 2nd in D06a. Repeat for up to 4 partners total.

I'd like to ask you more questions about each of these relationships you had. I'll start with your current/most recent partner…

INTERVIEWER: Start with the current or most recent partner or the partner that TC sees most often and for up to 4 partners in the last 6 months, ask the following questions:

D 05. **Relationship #1**
D 05a. What is this person's first name and last initial?
_____

COMPUTE VERSION: ANSWER THIS QUESTION ONLY IF: ***PARTNER INTERVIEW IS BEING ADMINISTERED THIS WAVE AND TC'S PARTNER IS PREGNANT:***
CI6. Is this person the partner we are interviewing in the partner interview?
1-YES *(be sure to skip pot/hard drug qs.)* 2-NO

D 05b. Is this person a male or female? 1- Male 2- Female

D 05c. How old is he / she? __ __

D 05d. Are you still seeing this person ?

If yes – do you live together ? If live together, married or not married ?
If no – were you ever married to this person ? If married – separated or divorced ?
1- yes, we are married
2- yes, we are living together (we're not married)

3- yes, we are dating or seeing each other (but not living together)
4- no, we are divorced
5- no, we are married but separated
6- no, we are no longer seeing each other and were never married
7- widowed

For the next set of questions, please think about the last 6 months:

D 05e. Thinking about (Partner's Name), how often do / did you spend time with him / her?

1- Almost every day
2- 2-5 times a week
3- Once a week
4- 2-3 times a month
5- Once a month
6- Less than once a month

Original f, g, h, i ***SKIPPED***

D 05f. On a scale of 1 to 10, with 1 being not at all close and 10 being extremely close, **how close did you feel to him / her in the last 6 months ?** (when seeing / dating him / her)

Not at all close ..... Extremely Close
1 10

D 05g. On a scale of 1 to 10, with 1 being not at all well and 10 being very well, **how well did you and (Partner's Name) get along in the last 6 months** (when seeing / dating him / her)?

Not at all well ..... Very Well
1 10

D 05h. Has he / she done anything **in the last 6 months** that could have gotten him/her in trouble with the police? 1-Yes 2-No 9- DK

D 05i. Has he / she ever been arrested, at any time in his / her life?
1- Yes 2- No 9- DK

D 05j. How would you describe the way he / she **drinks alcohol**, on average, in the past 6 months?

1- Never
2- Drank alcohol only a few times during the year
3- Drinks regularly for a few weeks or more, then doesn't for a few weeks or more **or** drinks, then stops drinking (ex: became clean and sober)
4- Drinks about once a month
5- Drinks on weekends or mostly on weekends
6- Drinks daily or almost daily
7- Other (specify): _____
9- Don't know

IF this Partner is currently pregnant AND is doing the Partner Interview (PRINT), skip to D05m now.

D 05k. How would you describe the way he / she **smokes pot**, on average, in the past 6 months?

1- Never
2- Smoked only a few times during the year
3- Smokes regularly for a few weeks or more, then doesn't for a few weeks or more **or** used, then stopped,
(ex: became clean and sober)
4- Smokes about once a month
5- Smokes on weekends or mostly on weekends or a few times a week
6- Smokes daily or almost daily
7- Other (specify): _____
9- Don't know

D 05 l. How would you describe the way he / she uses **hard drugs**, on average, in the past 6 months?

1- Never
2- Used hard drugs a limited number of times
3- Uses drugs regularly for a few weeks or more, then don't for a few weeks or more, **or** used, then stopped
(ex: became clean and sober)
and sober
4- Uses drugs about once a month
5- Uses hard drugs on weekends or mostly on weekends or a few times a week
6- Uses hard drugs daily or almost daily
7- Other (specify): _____
9- Don't know

D 05m. What is the **highest level of school** (Name) has finished so far?

0- any grade up to the 12th grade, but not having a High School Diploma/GED
1- GED or Equivalency
2- High School Diploma
3- Attended Community College but no A.A. (Associates) degree
4- Community College degree, (A.A.)
5- Attended 4 year University or College, but no degree
6- B.A., B.S., BSN degree

7- Graduate degree (MA, MS, PhD)
8- Other (Technical, Vocational school)
9- Don't know

Original u & v SKIPPED

D 05n. How **emotionally supportive** is / was (Name) of you in the last 6 months ?

Not at all supportive Very supportive
1 10

Partner # 2 D 06 a-n Partner # 3 D 07 a-n Partner # 4 D 08 a-n

Check that you have covered all partners, up to 4, and asked all questions.

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