

ABSTRACT

Title of Dissertation / Thesis: UNDERSTANDING DELINQUENCY
AMONG MALTREATED YOUTH IN
MARYLAND

Christina L. Yancey, Master of Arts, 2004

Dissertation / Thesis Directed By: Professor Charles Wellford, Department of
Criminology and Criminal Justice

The objective of this study was to improve upon researchers' understanding of the maltreatment-delinquency relationship. Within this study we examined differences among youth in Maryland with confirmed records of maltreatment and delinquency between 1998 and 2002. We tested three hypotheses in a series of six logistical regression models. The hypotheses were: characteristics of the maltreatment event influence the likelihood of delinquency; the intervention of the Department of Human Resources influences the likelihood of delinquency as the next point of contact; and the intervention of the Department of Juvenile Justice influences the likelihood of chronic delinquency. Our evidence supported the intended relationships. However, the data suggest that the relationships between the variables were contingent upon the sequencing of the interactions. While our data had many limitations, the findings from this study suggest that both the sequencing of interactions and the governmental intervention are important to understanding a link between maltreatment and delinquency.

UNDERSTANDING DELINQUENCY AMONG MALTREATED YOUTH IN
MARYLAND

By

Christina L. Yancey

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Advisory Committee:
Professor Charles Wellford, Chair
Professor Denise Gottfredson
Associate Research Professor Faye Taxman

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Chapter 1: Introduction

In early criminology the concept of physical and emotional abuse was considered an important contribution to understanding delinquency. In the Gluecks' seminal longitudinal study the authors determined that parental discipline style was more closely related to delinquent behavior than any other family characteristic or behavioral pattern (Glueck and Glueck, 1950, p.113). This connection between parental physical punishment and delinquency was confirmed in a later analysis by Nye (1958, p.89), in which physical punishment involving either partiality, unfairness, or child rejection was linked to high rates of delinquency. While modern research has not been as unequivocal as the early findings (Brown, 1984; Erickson, Egeland, and Pianta, 1989; Lipsey and Derzon, 1998; Zingraff, Leiter, Johnsen, and Myers, 1994), it is also clear that more inquiry is necessary to understand the complex dynamics between maltreatment and delinquency (Aber, Allen, Carson, and Cicchetti, 1989; Maxfield and Widom, 1996).

There is a definite timeliness to understanding the effects of maltreatment. While even one incident of child abuse is horrible, research suggests the rates of abuse have increased over the last few decades (Sickmund and Snyder, 1999; U.S. Department of Health and Human Services, 2002; Westat, 1996). Statistics are conflicting about the prevalence of child abuse in the U.S. According to one study, the total number of maltreated children nearly doubled between 1986 and 1993 with an increase from 931,000 to 1.5 million afflicted (Westat, 1996). A second national

study confirmed an increase during this time period, but suggests current estimates of abuse to be about 900,000 (U.S. Department of Health and Human Services, 2002). Possible explanations for the wide variance involve detection methods ranging from the exclusive reliance on child abuse cases reported to protective agencies (U.S. Department of Health and Human Services, 2002) to the utilization of data from a variety of community organizations that interface regularly with children (Sickmund and Snyder, 1999; Westat, 1996). Importantly, all surveys caution that their predictions are undoubtedly underestimating the true rates of abuse. Even if the most conservative estimate is accurate, the figure remains compelling evidence that child maltreatment is a significant phenomenon.

Lack of Research Consensus

While maltreatment is intrinsically reprehensible, it also has been linked to many negative life outcomes for abused youth, including delinquency (Brown, 1984; Burgess, et al. 1987; Widom, 1989a; Zingraff, et al., 1993; 1994). Researchers exploring the maltreatment-delinquency relationship agree on two points regarding this association. They agree that maltreated children are more likely than unabused youth to commit a crime at some point in their lives and that the great majority of both abused and unabused children will never be criminal offenders (Brown, 1984; Farrington, 1998; Henggeler, 1989; Smith and Thornberry, 1995; Widom, 1989b; Zingraff et al., 1994).

Traditionally, the maltreatment research has focused on understanding why maltreated youth are more likely to engage in delinquent activity than unabused youth (Zingraff et al., 1994). Early research sought to establish the positive association

between maltreatment and delinquency, and this association found empirical support, as well as significant criticism for its methodology (Brezina, 1998; Doerner, 1987; Garbarino, 1989; Kratcoski, 1982; Kruttschnitt, Ward, and Sheble, 1987; Schwartz and Rendon, 1994). Because of the complexity in determining maltreatment's influence on delinquency, researchers were motivated to move beyond the simple dichotomous relationship between the prevalence of maltreatment and the prevalence of delinquency within a sample (Ireland, Smith, and Thornberry, 2002; Kelley, Thornberry, and Smith, 1997; Maxfield and Widom, 1996; Smith and Thornberry, 1995; Widom, 1989b; Zingraff, et al., 1994; Zingraff, Leiter, Myers, and Johnsen, 1993). Additionally, the maltreatment research has attempted to address the substantial critical base which has argued, among other things, that the relationship is spurious because of maltreatment's intractability from significant family/environmental variables such as poverty (Brown, 1984; Erickson, Egeland, and Pianta, 1989; Lipsey and Derzon, 1998; Newberger, Reed, Daniel, Hyde, and Kotelchuck, 1977).

Modern maltreatment research has focused on several critical areas to improve upon the methodological limitations of the past. Researchers have expanded the operationalization of maltreatment and explored the type, severity, frequency/chronicity and perpetrator of the abuse, albeit not consistently (Ireland, Smith, and Thornberry, 2002; Maxfield and Widom, 1996; Smith and Thornberry, 1995; Widom, 1989b; Zingraff et al., 1993; 1994). Additionally, the effects of abuse have been examined in terms of delinquency type, severity, and frequency.

Another important improvement to the vigor of the maltreatment-delinquent research has been introduced by a group of researchers who argue a shift in focus is necessary. The researchers contend that primary attention should be on the majority of abused youth who avoid delinquency instead of those who engage in criminal activities (Ireland, Smith, and Thornberry, 2002; Zingraff et al., 1994). These youth may offer additional insight into the path from maltreatment to delinquency.

Gaps in Prior Research

Ultimately, while researchers have made strides in improving upon past inconsistencies, limitations continue to pervade the literature. One fundamental gap is that the relationship continues to be examined in an overly simplistic manner. Contemporary research has explored the relationship as the impact of one incident of maltreatment on delinquency, assuming that the maltreatment experience is a discrete, singular event (Herrera and McCloskey, 2001; Lemmon, 1999; Siegel and Williams, 2003; Widom, 1989b; Zingraff et al., 1994). The reality is that the maltreatment-delinquency interaction is complex in terms of the sequencing of the events and behaviors. Incidents of maltreatment may, and do, occur before *and* after the first account of delinquency. Of course, researchers are aware of this reality. They simply have not used data sets that have been able to examine a more complex understanding of maltreatment. In Zingraff et al.'s (1993) study of maltreated youth in North Carolina, for example, there were only four youth in the sample with a record of more than two substantiated reports of abuse. Additionally, the authors were not able to examine a dependent variable of chronic delinquency, as a single

event of delinquency was so rare. Time and again, the researchers offered that small sample sizes made it impossible to examine a more complicated relationship (Ireland, Smith, and Thornberry, 2002; Zingraff et al., 1993).

Just as researchers have had difficulty in examining a complex maltreatment-delinquency relationship, small samples have also precluded consistency in the complex operational definitions of maltreatment. Researchers consistently praise the comprehensive definition of maltreatment by Cicchetti and Barnett (1991), and yet, many researchers are unable to include abuse type, frequency, and duration in their models due to small samples (e.g. Lemmon, 1999; Smith and Thornberry, 1995; Zingraff et al., 1993)

In addition to the gaps generated by small samples, research is limited on intervening factors, despite encouraging support from research (Maxfield and Widom, 1996; Widom, 1989b; Zingraff et al., 1994). There are two types of intervening variables, risk and protective factors. Risk factors are variables that increase the probability a maltreated youth will engage in delinquency, and protective factors are those which mitigate the likelihood of delinquent behavior. The concept of risk and protective factors is well-entrenched within criminological literature (Farrington, 1998; Lipsey and Derzon, 1998). However, within the maltreatment research, the examination of these factors remains a nascent concept, and thus far, results have been mixed. Promising risk factors among the maltreatment population include personal characteristics, such as feelings of anger (Brezina, 1998); and family-related factors, such as family criminality (Kruttschnitt, Ward, and Sheble, 1987). According to Zingraff et al. (1994), examining family and individual

psychological factors, while important, are not the most fruitful prospects as they are “difficult to manipulate and have minimal policy value” (p.68). Rather, these researchers suggest examining factors exogenous to the youths and their homes.

One factor which is present, but unaccounted for, in the maltreated youth represented in research is the intervening influence of the government, in Maryland in the form of the Department of Human Services’ Child Protective Services Unit, and for delinquents, the Department of Juvenile Justice. Maltreatment research has primarily relied on governmental records to operationalize abuse and/ or delinquency, with very few exceptions (Siegel and Williams, 2003). At the same time, researchers have, for the most part, ignored the role that the government plays in the maltreatment-delinquency connection. The lone exception is Widom (1989b) who examined the impact of out-of-home placement. While this variable proved insignificant in her study, Widom remained unconvinced that the impact of out-of-home placement was null. She contends, in a later publication, that it is one of five potentially critical intervening factors (1994).

Current Study

In an attempt to fill the abovementioned gaps in the maltreatment-delinquency research, this thesis reports on an exploratory examination of the history of contacts that maltreated and delinquent youth have with the Maryland Departments of Human Resources and Juvenile Justice.

The second objective of this thesis is to examine the intervening influence of the Departments of Human Resources and Juvenile Justice in a model including

comprehensive measures of the maltreatment experience. This component of the inquiry involves the investigation of three central hypotheses:

H1: Characteristics of the maltreatment event influence the likelihood of delinquency.

H2: The intervention of the Department of Human Resources influences the likelihood of delinquency as the next point of contact.

H3: The intervention of the Department of Juvenile Justice influences the likelihood of subsequent delinquency.

To contextualize these perspectives a comprehensive literature review details the extant research in Chapter 2. This is followed by a description of the methodology in Chapter 3. Chapter 4 presents the findings and analysis with concluding remarks listed in Chapter 5.

Chapter 2: Review of Literature

The nature of the relationship between maltreatment and delinquency has not been clearly determined (Brown, 1984; Erickson, Egeland, and Pianta, 1989; Newberger et al., 1977; Wolfe, 1999). Despite the wide discrepancy in views on the relationship, there are a few general points about which many researchers agree. It is widely accepted that maltreated youth are at a higher risk for participation in delinquency (Brown, 1984; Farrington, 1998; Henggeler, 1989; Smith and Thornberry, 1995). That is, the proportion of maltreated youth participating in criminal activity is higher than the rate of involvement for unabused youth. However, even with this relatively high rate of criminal involvement, the proportion of maltreated children who become either delinquent youths or adult offenders remains low (Widom, 1989b; Smith and Thornberry, 1995; Zingraff et al. 1994). Thus, researchers have agreed that while maltreated children are more likely to commit crime at some point in their lives than unabused children, the great majority of both groups of children will never be criminal offenders. Beyond these two contentions, research has diverged enough to preclude consensus. The following literature review details the areas of dissonance.

The literature on the maltreatment-delinquency relationship is easily distinguished into 2 categories. The first category is the retrospective studies. These studies are characterized by sample populations of adolescent/adult offenders who are surveyed regarding maltreatment as children (e.g. Doerner, 1987; Kruttschnitt, Ward,

and Sheble, 2001). The second category is the prospective studies, which involve sampling the maltreated population and detecting delinquency/ adult offending (e.g. Lemmon, 1999; Zingraff et al., 1993). A limited number of these studies have a longitudinal design, with a select group of maltreated children being followed into adulthood (Smith and Thornberry, 1995; Widom, 1989b).

Retrospective Studies

The retrospective study was the predominate design utilized by early research on maltreatment and delinquency (Widom, 1989a). These studies were characterized with finding significant causal links between maltreatment and delinquency (Doerner, 1987; Kratcoski, 1982; Lewis, Mallouh, and Webb, 1989; Lewis and Shanok, 1977). However, even with substantial findings, the retrospective research was considered “equivocal” because of several methodological limitations (Lemmon, 1999).

Ultimately, retrospective studies have waned in popularity because of widespread criticism regarding methodological limitations (Brezina, 1998; Garbarino, 1989; Howing et al., 1990; Lemmon, 1999; Schwartz and Rendon, 1994; Widom, 1989a; Zingraff et al., 1994). The most common argument against the retrospective design is that it inflates the link between maltreatment and delinquency (Garbarino and Plantz, 1986; Widom, 1989; Zingraff et al., 1994). In a review of retrospective studies Garbarino and Plantz (1986) determined that the rate of maltreatment among delinquents was as high as 82 percent. At the same time, contemporary prospective studies were only finding 10 to 32 percent delinquency rates among maltreated youth. Additional critiques of retrospective studies centered on the inadequate

operationalization of variables (Brezina, 1998; Brown, 1984; Widom, 1989a) and the lack of adequate comparison groups (Kelley, Thornberry, and Smith, 1994).

A final problem with retrospective studies focused on the inadequate measurement of maltreatment. In most of this research the adolescent or adult offenders were asked to recall incidences of abuse, bringing into question the reliability of their responses (Schwartz and Rendon, 1994). Additionally, there was often no verification process by which researchers confirmed the incidences of abuse (Zingraff et al., 1993). One study which confirmed the unreliability of using the self-report measure of maltreatment was offered by Widom and Shepard (1996). The researchers interviewed 1,196 adults with confirmed child maltreatment records about their child abuse experiences. Of those physically abused, 40 percent recalled no abuse as a child. For whatever reason, these adults did not identify their maltreatment experiences as child abuse, even though their abuse had been substantiated by child protective services.

Prospective Studies

Because of the controvertible nature to retrospective studies, the maltreatment-crime research did not garner esteem until the advent of the prospective study (Lemmon, 1999; Widom, 1989a; Zingraff et al., 1993). Importantly, at the time, this shift was made specifically for methodological differences. The prospective and retrospective studies are not grounded in disparate ideologies. Both are rooted in developmental psychology and the theoretical assertion that early life experiences manipulate later life outcomes (Aber et al., 1989; Cicchetti, 1989; Dodge, 1991; Platt and Prout, 1987). While both types of studies are based on this premise, the

prospective studies did attempt to improve upon the methodological flaws of the retrospective design. Specific advances made by prospective studies include the use of: delinquency as a dependent variable and a more inclusive set of control variables (Alfaro, 1981; Garbarino and Plantz, 1986; Lemmon, 1999; Smith and Thornberry, 1995; Widom, 1989b, 1996; Zingraff et al., 1993, 1994); verified cases of maltreatment and delinquency (Lemmon, 1999; Widom, 1989b, 1996; Zingraff et al., 1993, 1994); maltreatment and delinquency type (Brezina, 1998; Lemmon, 1999; Simon, Robertson, and Downs, 1989; Smith and Thornberry, 1998; Vissing, et al., 1991; Widom, 1989b, 1996; Zingraff et al., 1993, 1994); and comparison groups (Thornberry, Huizinga, and Loeber, 1995; Widom, 1989b, 1996).

Theoretical Orientation

The prospective study grew out of developmental psychology with two major theoretical umbrellas underlying much of the research: social learning theory and socio-cognitive theories. The pioneer of social learning theory, Bandura (1973) argued that children learn aggressive behavior from the family, among two other sources, by a process of observational learning. Bandura identified this exchange of violent behavior from parent to child as the familial transmission of aggression (pp.92-6). This theoretical perspective is clearly underlying research that has analyzed and empirically supported the notion that child maltreatment instigates a 'cycle of violence' and promotes the 'intergenerational transmission of violence' (Aber et al., 1989; Cicchetti, 1989; Widom, 1989b).

The second theoretical framework encompasses the socio-cognitive theories. According to these developmental psychologists, maltreated children develop

abnormally because of inadequate interpersonal development skills (Platt and Prout, 1987; Dodge, 1991), poor ‘competence-promoting’ operations (Aber et al., 1989), and the integration of early abusive experiences into later encounters (Cicchetti, 1989). These developmental abnormalities translate to delinquent involvement as the youth has developed an emotional repertoire of nonconformity. The specific path to dysfunction is contentious, thereby leading to many varieties of socio-cognitive theories. Some researchers point to ‘hostile knowledge structures’ as the framework through which maltreated children become antisocial (Burks, Laird, Dodge, Pettit, and Bates, 1999); others point to a transmission of ‘aggressive scripts’ that account for inappropriate behavior (Huesmann and Guerra, 1997). Ultimately, the socio-cognitive and social learning theories converge on the basic tenet that child maltreatment results in long-term maladaptive behaviors.

Within the maltreatment-delinquency literature the emphasis has not been toward ascertaining the predominance of one of these theories over the other. On the contrary, most researchers are hard-pressed to elucidate one specific theoretical basis for the maltreatment-delinquency relationship and instead embrace a commingling of social learning, socio-cognitive, and other related theories (Aber, et al., 1989; Loeber and Stouthamer-Loeber, 1986). The importance of this distinction is to simply emphasize that it is not a particular theoretical orientation, per se, that defines the traditional prospective researchers, only a conviction that developmental impediments such as maltreatment have deleterious effects on life outcomes.

Focal Shift

While not specifically addressing the theoretical underpinnings of the cycle of violence approach, recent research has questioned its explanatory power (Ireland, Smith, and Thornberry, 2002; Zingraff, et al., 1994). These researchers have argued that the primary focus should be on the mechanisms by which the vast majority of maltreated youth *do not* become delinquent. (Ireland, Smith, and Thornberry, 2002; Zingraff et al., 1994). The early retrospective studies notwithstanding, delinquency has consistently incorporated only a small percentage of maltreated youth (Widom, 1989b; Zingraff et al., 1993). And yet, the cycle of violence perspective clearly does not account for how *any* child is able to escape the path from maltreatment to delinquency, nonetheless the vast majority of maltreated children. In order to shift the focus, some researchers have extended outside the constraints of the cycle of violence perspective and turned toward life course and developmental criminology (Elder, 1985; Loeber and LeBlanc, 1990; Sampson and Laub, 1993). Clearly, this exploration is in an inchoate stage as a contribution to the understanding of the maltreatment-delinquency relationship. Of the two studies focusing on the avoidance of delinquency by maltreated children, one argued that developmental criminology was a valued pursuit for analyzing these within-group differences (Zingraff, et al., 1994), as the other rejected it as akin to the approach taken by developmental psychology (Ireland, Smith, and Thornberry, 2002). While conflicting on the import of developmental criminology, both groups of researchers support the life course literature as a promising avenue. Life course proponents accept the theoretical premise that maltreated youth are on a trajectory away from normative behavior, but

contend that developmental psychology favors an ontogenetic perspective with early life experiences accounting for all outcomes (Sampson and Laub, 1993). Instead, life course researchers emphasize later life experiences which can ameliorate the effects of abuse.

There are several unique tenets to the life course perspective of crime. Perhaps the most apparent distinction is that life course departs from the traditional examination of between-group differences to studying within-group differences and within-individual changes (Elder, 1985). In order to capture the within-individual changes, the research relies on a longitudinal design. Additionally, life course proponents explore the dimensions of change through the framework of transitions. This concept describes the specific experiences within a life course that have the potential to spark a divergence, or turning point, from the established trajectory (Elder, 1985). These transitions include events such as marriage and employment; events which offer opportunities and relationships through which the established pattern of behavior can potentially be altered. The key is an emphasis on continuity as well as change in behavior (Sampson and Laub, 1993). Ultimately, the great importance to the life course perspective in regards to maltreatment is that it offers an explanation for offending as well as non-offending in childhood, adolescence, and adulthood.

Some researchers would argue that the life course and cycle of violence perspectives are mutually exclusive in that they assign different levels of importance to age-graded events. Ireland, Smith, and Thornberry (2002) argue that the exploration of different factors in the maltreatment-delinquency relationship would

result in disparate conclusions on the nature of the association. For life course criminologists, early life experiences are often ameliorated by later events, leading these researchers to explore more proximal causes for outcomes. On the other hand, cycle of violence advocates rest on the importance of early life experiences in irrevocably shaping human development. They argue that early life experiences, such as child abuse, are the most salient factors accounting for later life outcomes.

While there are clear distinctions between the two approaches, Zingraff et al. (1994) contend that these perspectives are not necessarily diametrically opposed. Both life course and cycle of violence proponents agree there are significant long-term effects for some maltreated children. At the same time, the two groups of researchers also draw attention to the resiliency of most maltreated children (Heck and Walsh, 2000; Maxfield and Widom, 1996; Widom, 1989b). Thus, each perspective supports that, for the great majority of maltreated youth, intervening variables reduce the effects of abuse and the subsequent risk for delinquency (Alfaro, 1981; Zingraff, et al., 1994). A further indication of the similitude between the perspectives is that the two emerging proponents of life course are recent converts from the cycle of violence perspective (Ireland, Smith, and Thornberry, 2002; Zingraff et al. 1994).

Clearly, the issue of the ability of the cycle of violence and life course perspectives to co-exist remains unclear. Perhaps the most pragmatic method to disentangling the cycle of violence – life course debate is to examine their overlap as well as divergences in conceptualizing the relationship between maltreatment and delinquency. For both groups of researchers, a complex assessment of the

relationship between maltreatment and delinquency is necessary. For cycle of violence advocates, as well as supporters of Zingraff et al.'s interpretation of the life course perspective, this involves a comprehensive representation of maltreatment. Developmental psychologists do not simply posit that maltreatment in any form results in equivalent outcomes. On the contrary, the effects of maltreatment are highly contingent upon the characteristics of the abuse (Cicchetti and Barnett, 1991).

While it is debatable if a comprehensive definition of maltreatment is meaningful for the life course perspective, the sequencing and proximity of life events is identified as critical to determining the strength of the maltreatment-delinquency relationship (Ireland, Smith, and Thornberry, 2002; Sampson and Laub, 1993). Empirically, this perspective has been tested through two approaches. The first is to examine the influence of specific variables which occurred between maltreatment and delinquency. The second is to examine the importance of the age of the abused youth in predicting delinquency. The younger the youth are at the time of the abuse incident, the more likely intervening life experiences will have mitigated the detrimental influence of maltreatment. Conversely, youth that are maltreated in adolescence will be more likely to engage in delinquency. Some life course researchers argue that the age at the time of abuse is the only element which is critical in determining the future likelihood of delinquency (Ireland, Smith, and Thornberry, 2002). Cycle of violence proponents stand in direct opposition, arguing that maltreatment quality is of central importance and that early abuse experiences incur more traumatizing effects than later maltreatment. While the complexity to the maltreatment-delinquency relationship is far from being unraveled, extant research

has identified the quality of the abuse experience, intervening variables, and the age at time of abuse as integral to evaluating the effectiveness of the life course and cycle of violence perspectives.

Empirical Support

With the invigoration of the prospective study, support for a maltreatment-delinquency relationship has been mixed (e.g. Widom, 1989b and Zingraff et al., 1993). At the same time, this mixed review has emerged from the analysis of only three major studies. The first of these maltreatment-delinquency studies, conducted by Widom, is credited with imbuing the research with much needed methodological rigor and validity (Lemmon, 1999; Zingraff et al. 1993). Widom (1989b; and Maxfield, 1996) followed 1,575 youth from childhood through young adulthood. Upon comparing the arrest records of the abused youth with a comparison group, Widom found that child maltreatment increased the odds of future delinquency and adult criminality by 40 percent.

The second maltreatment-delinquency study has been conducted by Thornberry and associates (Ireland, Smith, and Thornberry, 2002; Kelley, Thornberry, and Smith, 1997; Smith and Thornberry, 1995; Thornberry, Huizinga, and Loeber, 1995). The project is entitled the Rochester Youth Development Study and involves 1,000 youth. Similar to Widom's research, it is a panel study with the youth being followed from early adolescence through early adulthood. However, a specific focus of this research was to look at serious, chronic offenders, so Thornberry and associates oversampled males and those youth living in high crime areas (Thornberry, Huizinga, and Loeber, 1995). Of those youth with a home

environment containing partner violence, a climate of hostility, and child maltreatment 78 percent were violent offenders.

The third significant prospective study has been conducted by Zingraff, Leiter, Myers, and Johnsen (1993). The researchers used 522 random cases of substantiated child maltreatment within Mecklenburg County, North Carolina, and two comparison groups, one comprised of youth from a local school, the other from county welfare records. Zingraff and associates did not find as unequivocal a relationship between maltreatment and delinquency as that found in Widom and Thornberry's studies. Instead, Zingraff found maltreatment's link to delinquency to be mild. In fact, the relationship was only significant when comparing status offenses between the maltreated and school samples. For property and violent crimes, maltreated youth were no more likely than these unabused youth to be delinquent. The results were rendered insignificant when the maltreated students were compared to the impoverished children; their rates of participation in general, property, and violent crimes were indistinguishable.

Not only do the findings from these major studies about the maltreatment-delinquency relationship vary, but the methodological elements are inconsistent within the research as well. For both cycle of violence and life course perspectives, a clear picture of the maltreatment and delinquency experiences of the youth is necessary. What is lacking is an exploration into understanding the complexities of these youths' involvement in maltreatment and delinquency, as measured through DHR and DJJ contacts, respectively. Additionally, research has been limited in its

attempts to add complexity to operationalizing maltreatment. A final area of great importance to the research is the influence of the DHR and DJJ interventions.

Sequencing of Historical Events

Several of the recent studies examining the maltreatment-delinquency connection have examined the relationship as one discrete incident of abuse followed by a discrete incident of delinquency/adult criminality (Herrera and McCloskey, 2001; Lemmon, 1999; Siegel and Williams, 2003; Widom, 1989b; Zingraff et al., 1994). While researchers are aware that the relationship is much more complex, limited sample sizes have precluded an advanced representation. In Zingraff et al.'s (1993, 1994) study of maltreated youth in North Carolina, for example, the authors were unable to account for more than one incident of maltreatment or delinquency, even though they drew attention to the importance of such measurements. An exception has been the study by Ireland, Smith, and Thornberry (2002), who were able to account for maltreatment that persisted from childhood to adolescence. For this group, the link between maltreatment and delinquency was strong and positive.

For cycle of violence proponents the sequencing of historical events is salient in describing the maltreatment-delinquency relationship in that the earlier the abuse the more significant the impact. Cicchetti and Barnett (1991) account for this hypothesis by notating the developmental period during which abuse occurs in their operationalization of maltreatment. However, as stated above, this contention proffered by cycle of violence proponents is not uncontested. The antithetical argument supported by the life course advocates is that proximate experiences, such

as adolescent abuse, will influence delinquency greater than early childhood experiences.

Empirical research on this area of sequencing is limited to the research by Ireland, Smith, and Thornberry (2002). Indeed, this group of researchers working on the Rochester Youth Development Study (RYDS) has only one publication examining the maltreatment-delinquency relationship from a life course perspective. In Thornberry and associates early analysis of RYDS they contend that “exposure to family violence appears to reduce the effective socialization of children” and suggest that the United States’ high rates of juvenile offending are caused, in part, by their high childhood exposure to family violence (Thornberry, Huizinga, and Loeber, 1995, p.214). However, in Thornberry and associates later analysis of the RYDS data there is a clear transition in their perspective. The researchers argued that “more proximal events in the life course may be more salient than distal experiences in early childhood” (Ireland, Smith, and Thornberry, 2002, p.361). In examining the influence of the age of maltreatment on delinquency, the researchers determined that the timing of the abuse and delinquency are significant. They found that child-limited maltreatment increased the risk for violent crime in early adolescence. However, only maltreatment limited to adolescence or maltreatment persisting from childhood through adolescence was linked with violent crime in late adolescence. Within the researchers’ findings there is an implicit understanding that the effects of maltreatment are temporary.

In the two other major studies the effects of the age at time of abuse was not examined. Widom truncated her sample’s maltreatment records at age 12, and

Zingraff included maltreatment records from age 0 to 18. Neither researcher drew a distinction according to the age at time of abuse (Widom, 1989; Zingraff et al., 1993). Delinquency was avoided by a super-majority of their subjects, and it is not clear if this was a function of the timing of the abuse.

While not evaluating the effects of age at time of abuse, Zingraff et al. (1994) did explore the sequencing of life events. The researchers examined the intervening role of school performance in deflecting abused youth away from delinquency.

While Zingraff et al.'s research supported the life course model advocated by Ireland, Smith, and Thornberry (2002), they emphasized continuity, in addition to the change component of the perspective. Zingraff et al. argue that the study of maltreatment requires

room for both time-stable, enduring predispositions and structural constraints on the one hand, along with state-dependent life course experiences on the other in shaping the trajectory to delinquent or criminal behavior (p.64).

Thus, Zingraff et al. contends that within the same population a difference in terms of some variable, such as maltreatment characteristics, could result in both delinquent and non-delinquent outcomes.

Operationalizing Maltreatment

While an accurate overall picture of the maltreatment-delinquency relationship is important, perhaps the most critical component is a comprehensive operationalization of maltreatment. While this is critical for the generalizability and validity of maltreatment-delinquency studies, research has inconsistently operationalized maltreatment. Of the three major cycle of violence prospective

studies, the two developed subsequent to the emergence of the classification system purport to utilizing it (Smith and Thornberry, 1995; Zingraff et al., 1994). However, neither of these studies fully integrate the classification schema into their designs. While Widom's study predated the system, one of the strengths to her design was in the construction of the maltreatment variable (Widom, 1989b). She distinguished maltreatment by the type of abuse, albeit only into three categories, physical, sexual, and neglect, while Cicchetti and Barnett contend that five categories are necessary. Widom also examined the perpetrator of the abuse, the frequency/chronicity of the abuse episodes, and the placement experiences of the youth. The areas not explored in her operationalization of the maltreatment variable were the developmental stage during which the abuse occurred and the severity of the abuse, the latter of which was impractical given that Widom identified the maltreated sample using the most severe cases, those reported to the juvenile courts.

The Thornberry and Zingraff studies were less comprehensive in measuring maltreatment (Smith and Thornberry, 1995; Zingraff et al., 1993). While each claimed to utilize Cicchetti and Barnett's system, neither employed the techniques fully. Both contend that small sample sizes precluded full representation of the maltreatment experiences. Smith and Thornberry discussed analyzing maltreatment using the various types of abuse, but ultimately collapsed all of the categories because of insignificant group sizes. Zingraff et al. were moderately successful and examined the same categories as Widom, physical abuse, neglect, and sexual abuse. At the same time, Zingraff et al. did not examine maltreatment severity, frequency/chronicity, developmental period, placement experiences, or the

perpetrator of the abuse. Smith and Thornberry did include abuse severity and frequency/chronicity. However, placement experiences, developmental stages, and the perpetrator of the abuse were not included.

The inadequate operationalization of maltreatment and delinquency in the Zingraff et al. study (1993) were the foci of the Heck and Walsh study (2000). These researchers argued that the Zingraff et al. finding of an insignificant relationship between maltreatment and delinquency was caused by their exclusion of severity indices for abuse and delinquency. To appropriately measure maltreatment and delinquency, Heck and Walsh utilized a love deprivation scale as developed by Walsh and Petee for maltreatment and the Andrews Violence Scale for rating the violence level of delinquent acts. Using these more comprehensive definitions of maltreatment and delinquency resulted in a significant relationship between maltreatment and violent crime.

Criticisms

Both life course and cycle of violence proponents support the assertion that maltreatment plays an influential role on delinquent outcomes for some youth. This contention, however, is not universally embraced. In a meta-analysis of longitudinal research on the predictors of violent or serious delinquency, Lipsey and Derzon (1998) examined, among other variables, maltreatment as a predictor of delinquency. Based upon the longitudinal studies by Widom (1989b) and Smith and Thornberry (1995), the researchers concluded that maltreatment's effect on delinquent outcomes is extremely weak.

Other research has suggested that the effects of maltreatment on delinquency have not been adequately isolated from other environmental variables (Brown, 1984; Aber et al., 1989; Erickson, Egeland, and Pianta, 1989; Newberger et al., 1977; Wolfe, 1999). Most notably, researchers have determined that poverty confounds the effects of maltreatment. Aber et al. (1989) found that maltreated and unabused youth from low socioeconomic families performed commensurately poorly on portions of a developmental evaluation when compared to unabused, middle class youth. This result was confirmed by a study from Wolfe (1999), who found that maltreated youth and children from poor socioeconomic backgrounds both tended to exhibit poor relational representation, a variable linked to chronic, behavioral disorders. Another important finding about poverty and maltreatment came from a study by Newberger et al. (1977). The researchers determined that official records of child abuse overrepresent low-income families. With many of the maltreatment-crime studies relying on these official records to ascertain their maltreated population (e.g. Widom, 1989; Zingraff et al., 1993), this criticism is especially salient.

In addition to poverty, a group of researchers determined that maltreatment can be confounded among other family variables. Erickson, Egeland, and Pianta (1989) determined that abused youth do not exist in otherwise normally functioning families. Instead, the youth are surrounded by family dysfunction, and this dysfunction can cause psychological repercussions, leading to negative outcomes such as delinquency. Additionally, researchers have expressed concern that child behavioral problems and family factors can be mutually antagonistic, having a reciprocal effect (Howing et al., 1990; Loeber and Stouthamer-Loeber, 1986).

Conclusions

Research on the maltreatment-delinquency relationship is not without criticism. The literature began without strong methodological rigor in the retrospective study (e.g. Brezina, 1998; Garbarino, 1989; Howing, et al., 1990). During these early studies the relationship between maltreatment and delinquency was found to be strong, significant, and positive (Brezina, 1998). With the advent of the prospective study, researchers found the relationship between maltreatment and delinquency to be far less strong, but still significant and positive (Heck and Walsh, 2000; Smith and Thornberry, 1995; Widom, 1989b). More recently, life course prospective researchers have questioned the reliance upon childhood maltreatment in exclusively predicting delinquency (Ireland, Smith, and Thornberry, 2002; Zingraff et al., 1994). At the same time, this research is in a nascent stage of development.

Early developmental psychologists relied on the retrospective design to support their contention that maltreated youth would suffer lifelong consequences from their abuse, including delinquency. While this design was abandoned, the theoretical understanding was not. Using the prospective design, researchers continued with the assertion that maltreatment perpetuates an intergenerational transmission of violence, otherwise known as the cycle of violence. Empirically, this argument has been met with some success. That is, researchers have found that physically abused children are more likely than unabused children to commit violent crimes (Heck and Walsh, 2000; Thornberry, Huizinga, and Loeber, 1995; Widom, 1989b; Widom and Maxfield, 1996).

While these prospective researchers were achieving moderate success in testing their cycle of violence hypothesis, there was also an unexplained outcome in the research. The vast majority of maltreated youth do not progress to become delinquent. In an attempt to explain why most maltreated youth do not become offenders, the life course perspective was adopted by some researchers (Ireland, Smith, and Thornberry, 2002; Zingraff et al. 1994). These researchers sought to understand how continuity and change operates within the maltreatment-crime relationship. The areas explored by these researchers have included: the importance of timing of maltreatment and the importance of protective factors such as good school performance in preventing delinquency (Ireland, Smith, and Thornberry, 2002; Zingraff et al., 1994). These initial life course studies have been met with empirical success.

While the life course and cycle of violence researchers have advanced the scientific rigor of the maltreatment-delinquency studies, there remain critical methodological limitations which will be attended to in this thesis. Of primary import is the fact that a comprehensive definition of maltreatment has not been employed. Without this measure adequately operationalized, the findings from maltreatment-delinquency research are suspect. Current research is cognizant of the inadequate measurement of maltreatment (Smith and Thornberry, 1995; Zingraff et al., 1994), and yet no study has corrected this indiscretion. Additionally, the interplay between the timing of maltreatment and the timing of delinquency, which is the central point of contention between life course and cycle of violence proponents, has received limited attention (Ireland, Smith, and Thornberry, 2002). If early abuse, *ceteris*

paribus, is linked to delinquency in late adolescence, the cycle of violence hypothesis would be reinforced. Conversely, if more proximate incidents of abuse are linked to criminality in late adolescence, the life course perspective would be supported. If both contentions prove to find a relationship, then the argument proffered by Zingraff et al.'s life course perspective would be supported; that continuity and change exist within the same population (1994). Finally, prospective researchers as a whole have yet to quiet the persistent criticism that characteristics of maltreated youth are confounded with other known correlates of delinquency; namely, socio-economic status and family factors. One way to circumvent the confounding factors is to examine within group differences. Thus, by examining the maltreatment factors distinguishing the delinquent and non-delinquent youth, we will be able to isolate effects independent of these confounding variables.

The central focus of this thesis is to improve upon researchers' abilities to predict delinquency among maltreated youth. Insight into this debate would be a powerful contribution for crime prevention policies by detailing the timing and characteristics of maltreatment in predicting delinquency. In reality, the maltreatment-delinquency relationship is complex in terms of the sequencing of events and behaviors. Incidents of maltreatment may, and do, occur before *and* after the first account of delinquency. Unfortunately, research in this area has not created an accurate picture of these youths' experiences and lives. Not only must researchers include a comprehensive operationalization of predictive variables such as maltreatment, but the range of explanatory and explained variables in this relationship should be exhaustive, as well.

Chapter 3: Data and Methodology

Data

The Maryland Department of Human Resources (DHR) furnished a comprehensive list of their clients under the age of 21 who had contact with the Child Protective Services unit of DHR during the time period between July 1, 1998 and July 1, 2002. The total number of youth serviced during this four-year period totaled 119,773, with each youth having at least one contact with DHR during this time period.

Sample Selection

The first step of the process was to isolate the youth with a record of delinquency among the 119,773 DHR youth. The Maryland Department of Juvenile Justice (DJJ) provided a comprehensive list of their under-21 clientele who had a complaint filed against them between July 1, 1998 and July 1, 2002. The DJJ records were matched with the DHR files based upon the unique identifiers of last name, first name, gender, age, and race. The 1609 cases without a full record of identifiers were dropped from consideration. After separating the files, 11,687 youth were determined to have a file with both DHR and DJJ from 1998-2002.

The second phase to narrowing the population involved the elimination of delinquent youth whose initial involvement in official delinquency preceded their first maltreatment record. The rationale behind this action is that we are interested

primarily in exploring the characteristics of maltreatment that could be a factor in predicting delinquency. Additionally, in these cases delinquency could be a factor in the occurrence of later maltreatment (Loeber and Stouthamer-Loeber, 1986). By excluding this segment of the maltreated youth, the delinquent population is reduced by 2,462.

After reducing the sample to 9,167, there remained additional exclusions. We are seeking to understand delinquency among maltreated children, and while DHR primarily deals with this population, it also assists families of non-maltreated youth. DHR may assist a family in need of the following services: “day care, emergency food, or shelter, parenting classes, therapeutic counseling, parent aide or homemaker services, and assistance with housing” (Maryland Department, n.d.). According to a DHR representative (Shirley Brown, personal communication, August 14, 2003), the cases that were opened for less than 2 weeks most likely represented these unabused youth. There were 3,296 DHR cases open for less than 14 days. After eliminating them, the population was reduced to 5,893.

The final exclusion limited the age of the youths included in analysis. Because we are interested in the outcome of delinquent behavior, and not simply legally defined delinquency, we eliminated the youngest segment of the sample. A 5 year-old and a 13 year-old could engage in commensurately delinquent behavior, but, because of the age difference, the younger child’s act would not be legally defined as delinquent. After examining the age distribution, we eliminated the youth under age 8, as this was a natural break in the number of delinquent complaints filed. While there were 22 complaints filed against youth 7 and younger, there were 434 filed

against youth at age 8, which appears to support the assertion that acts of delinquency perpetrated by youth younger than 8 are primarily filtered out before the complaint stage.

Dependent Variable

Delinquency is the endogenous variable within this study. As stated above, delinquency is determined by whether or not the youth had a complaint formally filed against them with DJJ during the time period between July 1, 1998, and July 1, 2002. With all of the youth in this study involved in at least one delinquent episode, we are interested in predicting the timing of the delinquency rather than the incidence itself. Thus, we are examining if delinquency at time 2 is dependent on maltreatment at time 1 and if delinquency at time 3 is predicated on maltreatment at time 2 and so on.

There are two main caveats against using official sources of data for determining delinquency. Court records reflect only more serious offenses and have a processing bias based upon race and gender (Johnson and Scheuble, 1991; McCarthy and Smith, 1986). Because we are gauging delinquency by the complaint and not the adjudicated outcome, we hope to minimize the effects of the court system. At the same time, processing bias based upon race and gender remains an important caveat to these data.

In addition to examining the effects of the models in terms of one delinquent act, we are also interested in gauging the relationship between our independent variables and chronic delinquency. There were two motivating factors in defining chronic delinquency. The first is that prior research does not provide a clear

definition of chronic delinquency. According to a recent review, researchers found the literature “contains as many definitions of chronic offenders as studies that address them” (Jones, Harris, Fader, and Grubstein, p.508). While research does not definitively establish a set number of offenses necessary for a delinquent to be considered chronic, there appears to be a consensus that at least 3 offenses are necessary.

The second factor aiding us in defining chronic offending is that we are constrained by the inclusion of only the first five interactions with either DHR or DJJ during a four-year period. Thus, the highest level of chronicity captured in these data includes four incidents of delinquency. Because of this limitation, we adopted the most liberal definition of chronic offending that is accepted by prior research and defined chronic offending as the commission of three or more acts.

Independent Variables

The interest of this study is to more closely examine the effects of aspects of the youths’ abuse and of the subsequent DHR response on predicting the onset of delinquency. For those youth who engage in chronic offending, we are also interested in the effects of the initial and subsequent DJJ encounters.

Type of Maltreatment. The types of abuse analyzed in this study are physical, neglect, and sexual. Physical abuse is defined as physical injury that is not necessarily visible, but has resulted in the child’s health or welfare being compromised or at risk of being compromised. Neglect is characterized as the failure of the caregiver to provide adequate care and attention to the child and includes the

leaving of the child unattended. Sexual abuse involves an act of sexual molestation or exploitation.

Duration of DHR Case. This variable indicates the length of time services were administered by DHR on behalf of the maltreated youths. The length of service time was divided into three empirically-derived segments, which included fourteen days through five months; six through eleven months; and one year or longer. As indicated earlier, those with a record of less than fourteen days were eliminated from the sample. The duration of a DHR case file reflects chronicity of abuse (Cicchetti and Barnett, 1991) and the level of exposure to DHR in-home services.

Placement. There are two variables which address out-of-home placement. One circumstance under which a youth could be removed from the home results from a DHR investigation. In this instance, the youth is placed either in the home of another family member or in an institutional arrangement such as foster care. The second variable addresses instances where DJJ mandates a youth's removal due to delinquency. In this case, the out-of-home arrangement is defined as an institution, either secure or nonsecure, or a residential treatment center.

Control Variables

Prior research has consistently determined that the effects of maltreatment vary systematically according to race, gender, and age (Smith and Thornberry, 1995; Widom, 1989b; Zingraff et al., 1994). Race was dummy coded with one (1) representing black and zero (0) representing white. Gender was also dummy coded with one (1) representing female and zero (0) representing male. We constructed our age variable taking into account the research's sharp division over whether abuse in

childhood is more or less predictive of delinquency than adolescent abuse (e.g. Widom, 1989b; Zingraff et al., 1994). Age was coded as a dummy variable with those over the age of 12 representing adolescent abuse and those 12 and under representing childhood abuse. According to Cicchetti (1990), the age of 12 indicates a qualitative difference in the developmental stage of youth . Additionally, a dummy variable was created using the same construct to measure the age at time of first delinquent contact.

Techniques of Analysis

In order to exploring the importance of the DHR and DJJ experiences of youth in the state of Maryland, we first have to better understand the characteristics of these experiences. We begin the analysis by plotting out the first five DHR or DJJ interactions of the youth. For each interaction, we offer the frequencies according to gender, race, duration of DHR case, type of abuse, age, and out-of-home placement. This allows us to detect any patterns in the sequencing of services.

In moving beyond the simple exploration of the dependent and independent variables, we will examine the data in a series of six predictive models using ordinary least squares (OLS) regression. Within all of the models, we are determining the relationship between maltreatment and subsequent delinquency conditioned on gender, race, and age. For the first model, we are testing the ability of the characteristics of the initial interaction with DHR to predict the initial incident of delinquency at the second contact. For the second model, the characteristics of the second DHR contact are tested as predictors for the first DJJ incident as the third overall contact. The third model tests the predictability of the first DJJ incident as

the fourth contact by the third DHR experience. For the fourth model, the DHR experiences as the fourth contact are measured as predictors for the first DJJ incident as the fifth contact.

In the first four models, the initial incidence of delinquency is the outcome measure, while in the final two models the outcome measure is chronic delinquency. For the fifth model, we are interested in the experiences from the first three contacts, one with DHR and the other two with DJJ, as predictors of delinquency for the subsequent two contacts. The final model includes the experiences of the first three contacts, two with DHR and one with DJJ, and tests their ability to predict delinquency as the final two contacts.

Comparison Group

The comparison group varies depending on the model. Because all of the youth have committed a delinquent act, both the comparison and experimental groups are similar in that regard. The distinction between the two groups is the timing at which the delinquency occurs. Thus, for model 1, the comparison group will be the youth who do not have delinquency as the second point of contact with the system. For model 2, the comparison group is the youth who do not have delinquency as the third point of contact with the system and so on. Therefore, individuals in the comparison group for model 1 are not necessarily in the comparison group for model 2, 3, or 4.

Chapter 4: Results

Descriptive Study

We begin with an exploratory examination of the data. Table 1 details the plotting of the first 5 interactions with DHR and/or DJJ. It offers the global perspective of the crime transitional probabilities by specifying the rates of delinquent involvement for all of the youth engaged in one or more of the fifteen sequences of interactions. There did not appear to be a particular pattern of involvement. For example, the highest rate of delinquency as the subsequent interaction (75.6 percent) was for those youth with a prior sequencing of DHR, DJJ, DJJ. However, for those youth with an interaction of DHR, DJJ, DJJ, DJJ, the probability of delinquency as the subsequent interaction was only 36.9 percent, which was lower than the rates for those youth with a prior interaction sequence of DHR, DHR, DHR, DJJ (45.5 percent) or DHR, DJJ, DHR, DJJ (48.4 percent).

In addition to examining the rates of participation in subsequent delinquency for all youth, we also deconstructed the involvement by duration, out-of-home placement, and DJJ confinement. Table 2 provides a visual representation of the first five interactions with DHR and/or DJJ, including the data from Table 1 in addition to characteristics of the youth.

Duration of DHR Case

When examining the length of time DHR case files were open, we saw no discernible pattern. There didn't appear to be any sequencing which triggered a longer or shorter DHR case file. For example, while it would be plausible for case files to lengthen as the number of DHR interactions increased, there was no indication of this occurring. The largest proportion of youth to have a DHR case file opened less than six months occurred at the initial interaction with DHR (86 percent of the group). However, the proportion of youth with case files opened less than six months did not decrease substantially. Throughout the remaining interactions, the percentage did not dip below 57.7 percent. In fact, for all interactions save two, the proportion of case files closing before six months was equal to or greater than 72 percent. Overall, the most common length for a case file to be open was less than 6 months. The rate of case files open for greater than one year increased after the first interaction, but did not continue to do so as the number of interactions increased. At the initial contact with DHR, 4.4 percent of the files were opened longer than a year. For those with a second interaction, 4.5 to 11.3 percent of the cases were open for one year or more. However, for the third and fourth interactions, the proportions ranged from 1.3 to 12.2 percent, with most of the percentages factoring below 8 percent.

Out-of-Home Placement

Removing the child from the home steadily increased as the number of contacts with DHR increased. Those youth who had five contacts with DHR were removed at the highest rate of 27.3 percent. For all types of sequencing of

interactions save one, the largest proportion of the youth was removed from the home at the fifth interaction as a DHR contact.

DJJ Confinement

The highest rates of DJJ confinement were at the first contact, save one exception. The confinement rate was between 13.5 and 19.5 percent. When the first DJJ contact was the second, third, fourth, or fifth interaction, the rate of confinement ranged between 4.7 and 13.6 percent of the group. For those youth with more than one DJJ contact, the rates of confinement steadily decreased, with one exception. For example, for those youth with four DJJ contacts, the rate of confinement declined from 13.5 to 9.7 to 6 to 4.7 percent.

Testing an Association between the Variables: Cross-Tabulations

Model 1

The results from this cross-tabulation are summarized in Table 3. The duration of the DHR case was insignificantly related to the first record of delinquency as the second interaction. Type of abuse and being placed outside the home as a response to the DHR case were significantly related to delinquency as the second interaction.

For type of abuse, the majority of the neglected youth avoided delinquency as the second interaction (59 percent), while the majority of the sexually abused youth were delinquent (62.5 percent). The physically abused youth were only slightly more likely to participate in delinquency as the second interaction (52.9 percent).

Among the youth who were removed from the home as a result of the DHR case, the vast majority were not involved in delinquency as the second interaction (68.1 percent). In fact, this group represents the largest proportion of youth who avoided delinquency among all of the predictive variables. Of those who were not removed from the home, 49.7 percent were involved in delinquency.

Model 2

Table 4 offers the results of the cross-tabulations between characteristics of DHR as the second interaction and the first record of delinquency as the third contact. In examining the association between the characteristics of the DHR interaction and delinquency as the third interaction, there was one similarity with *Model 1* findings. For types of abuse, those experiencing sexual maltreatment remained the most likely to be delinquent (47.2 percent) followed by physical (37.6 percent) and neglect (33.9 percent).

There were also differences in the associations between the variables when comparing the first to the second model. Duration of the DHR case file was insignificant in the first model, but was significant in the second. The rate of involvement in delinquency as the third interaction increased slightly as the duration of the second DHR case increased from <6 mos. (33.7 percent) to 6-11 mos. (47.2 percent) to 1 yr.+ (47.6 percent).

While those who were removed from the home participated in delinquency at approximately the same rate as those in *Model 1* (32.4 percent v. 31.9 percent), the real change was for those who were not removed from the home. The youth were involved in delinquency as the third contact at a rate of 25 percent, compared to 49.7

percent in the first model. Thus, while 67.6 percent of those removed from the home avoided delinquency as the third interaction, 75 percent of those not removed from the home did.

Model 3

Table 5 details the level and significance of the association between the characteristics of DHR as the third interaction and the first record of delinquency as the fourth. For the first time, all of the variables in the model proved to be significantly associated with the first record of delinquency as the subsequent interaction.

For type of abuse, the rates of participation were significantly different, but only slightly so. Those physically abused (33.7 percent) were more likely than those sexually maltreated (32 percent) or neglected (31.3 percent). What is interesting about this finding is that it diverges from the trend reflected in *Models 1 and 2* with those suffering sexual abuse participating in delinquency as the subsequent involvement at the highest rates.

Reflecting a more substantial difference in the levels of association was the duration of the DHR case file. In *Model 2*, the longer the file was open, the proportion of those involved with delinquency as the subsequent interaction increased slightly. In *Model 3*, that trend continues and is more substantial. For those with a case file opened less than 6 months, the rate of participation in delinquency as the fourth interaction was 31.2 percent. For case files opened 6-11 months, the rate of involvement was 43.1 percent, and among case files opened 1 year or longer, 47.8 percent of the youth were involved in delinquency as the subsequent interaction.

A similar trend is apparent for those who were not removed from the home but who were involved in delinquency as the subsequent interaction. For these youth, over the span of the three models, their rate of involvement with delinquency declined from 49.7 percent to 25 percent to 14.2 percent. At the same time, the rate of participation in delinquency as the subsequent interaction for those who were removed from the home has remained more or less consistent. In this model, the youth rate of involvement in delinquency as the fourth interaction was 36 percent (in *Model 1* it was 31.9 percent and in *Model 2* it was 32.4 percent).

Model 4

Table 6 reports the results of the cross-tabulation between characteristics of DHR as the fourth interaction and the first record of delinquency as the fifth. The levels of participation in delinquency by type of abuse reflected the pattern from *Models 1 and 2*. Those experiencing sexual abuse were more likely to be involved in delinquency as the fifth interaction (41.3 percent) than those suffering physical abuse (30.1 percent) or neglect (28.3 percent).

Similarly, for the variable of duration of the DHR case, the levels of participation in subsequent abuse reflected the pattern from *Models 2 and 3* in that the relationship between duration and delinquency was a positive one. For this model, the rate of involvement in delinquency as the fifth interaction was 30.5 percent for the youth with a DHR case opened less than six months. For those with a DHR case opened 6-11 months, the rate of involvement in subsequent delinquency increased to

45.6 percent, and for cases opened one year or longer, the rate of involvement was 56.1 percent.

The final variable, out-of-home placement, also reflects a continuing trend. For those who were not taken from the home, the rate of involvement with delinquency as the subsequent interaction declined from the *Models 1 through 3* (49.7 to 25 to 14.2 percent). In the current model the rate of involvement in delinquency as the fifth interaction for youth not removed from their home was 7.5 percent. For those who were removed from the home, their rate of involvement in delinquency as the subsequent interaction was 36.4 percent, which is a slight increase compared to the preceding models.

Model 5

The final two models are different from the preceding four in two substantial ways. First, rather than examining the association between a given variable and the first delinquent episode, these models test the significance of an association between a given variable and chronic delinquency. Additionally, because these models include youth with prior delinquency, the number of associations tested is expanded to include characteristics of the first and second delinquent records in addition to the characteristics of the DHR experience.

Table 7 reports the findings for *Model 5*. This model examined the association between characteristics of the first three interactions and chronic delinquency. The first three interactions consisted of DHR followed by two DJJ contacts. For this cross-

tabulation there were several insignificant comparisons. There was no statistically significant finding for duration of DHR case.

One significant variable was type of abuse. Those most likely to be involved in chronic delinquency were the neglected youth (33.8 percent) followed by those suffering from physical (33.1 percent) and sexual abuse (24.2 percent). Interestingly, these levels of involvement are directly opposite the trend expressed in *Models 1, 2, and 4* where sexual abuse was most strongly related to the first record of delinquency as the subsequent interaction.

Another significant variable was out-of-home placement as a response to the DHR case. Those who were placed outside the home were chronic delinquents at a rate of 40.7 percent compared to 32.2 percent of those who were not removed from the home.

Being institutionalized as a response to the DJJ record was significantly related to chronic delinquency. For those institutionalized as a response to the first DJJ record, 74.3 percent were chronic delinquents compared to 26.3 percent of those who were not institutionalized. For the second DJJ record, the institutionalized were also more likely to be chronic delinquents at a rate of 83.5 percent as opposed to 30.5 percent of those not removed from their homes.

Model 6

The findings from this cross-tabulation are reported in Table 8. For this model the associations measured are those between characteristics of DHR as the second interaction, DJJ as the third and fourth, and chronic delinquency. As in *Model*

5, race and being over the age of 12 at the time of the first DJJ record were insignificant. All of the remaining variables were significant.

Similar to the results in *Model 5* was type of abuse with sexual abuse having the lowest rate of association with chronic delinquency (29.9 percent). Showing higher rates of involvement were physically abused (39.7 percent) and neglected (38.8 percent) youth.

While insignificant in *Model 5*, the duration of the DHR case proved significant in this model. For those with a file opened less than 6 months, 23.1 percent were chronically delinquent. Among those youth with a file opened 6-11 months, the rate of chronic delinquency was 37.7 percent. 37.4 percent of those with a file opened 1 year or longer were chronically delinquent. These proportions are somewhat similar to those in *Models 2, 3, and 4* where the relationship between duration of DHR case files and delinquency was positive.

A final significant variable was removal from the home. For those placed outside the home as a response by DHR, 40.4 percent of them later became chronic delinquents compared to 32.1 percent of those who were not removed from the home. Among those institutionalized as a response to their first DJJ record, 74.3 percent engaged in chronic delinquency compared to 26.3 percent of those who were not institutionalized. In response to a second DJJ record, the proportion of those who proved to be chronically delinquent increased for both those who were institutionalized (83.5 percent), as well as for those who were not (30.5 percent). Once again, the proportions of involvement in subsequent chronic delinquency were

compatible with the results from *Models 2-4*, with the youth not removed from the home less likely to be involved in subsequent delinquency.

Logistic Regression

Hypothesis 1

The characteristics of the maltreatment event that we theoretically linked to delinquency were also statistically associated with delinquency in at least one of the cross-tabulations. These variables included maltreatment type and duration of the DHR case, which represents both the duration and the chronicity of the abuse (Cicchetti and Barnett, 1991). Therefore, we did not remove either of them from the models.

Before running the predictive models, we compared the demographic differences among the groups in the 6 models in Table 9. We did this to ascertain if there were substantial differences between the delinquents and the comparisons. We did find that there were differences between the two groups based upon gender, race, and age. While these percentile differences were not substantial, they do indicate some systematic difference between the two groups.

The results of the logistic regression for all six models are represented in Table 10. Based upon the significance of the coefficients and their size, the first hypothesis is confirmed. Characteristics of the maltreatment experience influence the likelihood of the first incident of delinquency as the subsequent encounter. With physical abuse being the comparison variable, sexually abused youth were more

likely to be delinquent in the subsequent interaction in Models 1, 2, and 4 with coefficients of .395, .352, and .680. Neglected youth were less likely to be delinquent than youth suffering from physical abuse during Models 1 and 2 with coefficients of -.393 and -.222. For Model 3 both sexually abused and neglected youth were no more likely to be delinquent than physically abused youth.

Additionally, the type of abuse appears to be a predictor of chronic delinquency. For those youth with one prior DHR interaction and at least three DJJ records, the coefficient for sexual abuse is -.471, and for those with two prior DHR interactions and at least three DJJ interactions, the coefficient is -.353. Neglect did not predict chronic delinquency in either model.

The other characteristic of the maltreatment experience measured was the chronicity of the abuse, as operationalized by the duration of the DHR case. This variable was significant in predicting the first delinquent encounter as the subsequent interaction, but proved insignificant in predicting chronicity in delinquency. For the first four models, the size of the coefficient was positively related to the length of time the case was open. With cases opened less than six months serving as the comparison variable, youth with DHR cases opened six to eleven months were more likely to engage in delinquency as the next interaction for Models 1-4, with coefficients of .243, .631, .472, and .584. Those with cases opened one year or more had even higher coefficients for Models 2-4, with coefficients of .912, .781, and .835.

Hypothesis 2

The two variables measuring DHR intervention, duration of DHR case and out-of-home placement by DHR, were both significantly related to predicting

delinquency as the next point of contact. As explained for *Hypothesis 1*, the longer the DHR case file was opened, the more likely a youth was to commit a delinquent act as the subsequent interaction. While the link was significant between duration and the commission of the first delinquent act, the duration of the DHR case was not significantly related to chronic delinquency.

Proving a relationship to the first delinquent interaction, but not to chronic delinquency was out-of-home placement by DHR. Out-of-home placement was negatively related to delinquency in *Models 1-3* (-.576, -.759, -.562), but proved insignificant in *Model 4*. Out-of-home placement was also insignificant in predicting chronic delinquency.

Hypothesis 3

Mandatory confinement as a response to the first and second DJJ cases were the variables used to measure intervention by the DJJ. Both variables proved to be significant and positive predictors of chronic delinquency. Institutionalization after the first DJJ record had higher coefficients for *Model 5* as well as *6* (1.237 and 1.234) compared to those youth institutionalized after the second DJJ record (.717 and .652).

Chapter 5: Discussion and Concluding Remarks

We predicted that the characteristics of the maltreatment experience would influence the likelihood of subsequent delinquency. This prediction was confirmed in our analysis. However, the data suggest that the relationship is not absolute and is contingent upon the sequencing of the interactions. For example, the type of abuse is not consistently a significant predictor of the first record of delinquency. Rather, the explanatory power of abuse type is contingent upon the number of prior DHR encounters. Likewise, institutionalization as a response by DHR is only conditionally influential on delinquency as the subsequent outcome. It decreases the likelihood of delinquency as the subsequent interaction, except when institutionalization is the response to the fourth DHR interaction. The only variable that was consistently significant in predicting subsequent delinquency was the duration of the DHR case file, which was a measurement of both the chronicity of the abuse as well as the level of youth exposure to DHR.

We also predicted that the characteristics of the maltreatment experience and prior delinquency encounters would influence the likelihood of chronic delinquency. With sexual abuse type being the only significant maltreatment variable, we can conclude that our data do not suggest a strong relationship between maltreatment and

chronic delinquency. However, the exogenous delinquency variables were both strongly and significantly related to chronicity. That is, DJJ confinement after the first and second DJJ cases were both positively related to chronic delinquency.

Limitations to Current Study

A significant limitation to this study is the fact that we examined only the short term effects of the maltreatment experience on predicting delinquency. All data for the study came from a four-year time period, thereby preventing a test of long term effects. Additionally, considering all of the youth were delinquent during this four-year period, we were only able to predict maltreatment experiences that would hasten the delinquency. Thus, within the time frame of four years, we examined the variables which would result in delinquency relatively quickly. Considering extant research has suggested that short-term associations between maltreatment and delinquency do not necessarily translate to long-term ones (Ireland, Smith, and Thornberry, 2002), our findings are limited.

Another limitation to the current study is that the data precluded a fully comprehensive definition of maltreatment. Cicchetti and Barnett (1991) created the most inclusive operationalization of maltreatment. Their instrument has been lauded by maltreatment researchers (Smith and Thornberry, 1995; Zingraff et al., 1994), although no study has fully employed its instrument with six dimensions of maltreatment: type of abuse, abuse severity, frequency and chronicity of maltreatment, youth placement experiences, perpetrator of abuse, and age at time of

abuse. Within this study, we included many of the categories, but did not further distinguish them according to the Cicchetti and Barnett's classifications. For example, we examined the type of abuse, but only according to three categories compared to the six distinct types outlined by Cicchetti and Barnett (1991). Because of our incomplete operationalization of maltreatment, the results are limited in their generalizability. Additionally, the inadequate definition of maltreatment threatens internal validity. However, it should also be noted that this instrument has not been tested in relation to delinquent outcomes, so the threats to validity and generalizability remain theoretical at this time.

An additional limitation to the results is regarding systematic differences between the delinquent and comparison groups. These groups differed in all of the models according to gender, race, and age. While these percentile differences were not substantial, this remains a caveat to the findings. That is, the strength of our findings may be overestimated due to this systematic bias.

A final limitation to the current study is related to the confounding effects of maltreatment and other social factors such as poverty and dysfunctional families. Prior research has been critical of the finding of a significant relationship between maltreatment and delinquency, arguing that maltreatment masked the true association between other social factors and delinquency (Brown, 1984; Erickson, Egeland, and Pianta, 1989; Wolfe, 1999). Because all of the youth in this study were maltreated, the primary argument that maltreated youth are poorer and/or dysfunctional compared to unabused youth is not applicable. However, these social factors remain a significant limitation to this study. Differences within the group could very well

account for the differences in offending. In past studies, the total variance between maltreated and unabused youth was accounted for by poverty (Zingraff et al., 1993). Additionally, one of the few promising risk factors for delinquency among maltreated youth has been family criminal (Kruttschnitt, Ward, and Sheble, 1987). Because the socioeconomic differences between the maltreated youth were unaccounted for, the results of this study are tentative.

This study is additionally hampered by the exclusion of measurements of social factors. While these factors have been confounded with maltreatment, in general, it remains unclear as to the exact components of maltreatment with which they are confounded. Not only does a comprehensive operationalization of maltreatment lead to greater precision in predicting delinquency, but it also lends to understanding the components of abuse that are correlated with social factors. For example, the type of abuse could be strongly related to poverty, whereas chronicity of abuse is not.

Concluding Remarks

Despite limitations to the current study, we have determined important areas for future examination in maltreatment-delinquency research. This study suggests that government intervention is not a benign action. Rather, DHR and DJJ interventions influence both the first incident of delinquency as well as chronic delinquency for some maltreatment youth. While the present study suggests a role, it is limited in detailing more precisely what elements of the interactions are significant. For example, while the duration of the DHR case is related to delinquency as the

subsequent interaction, the available data do not indicate the type of services rendered during this period. Thus, we have no indication of qualitative differences in the services proffered to the youth during that period.

An additional area for future research is regarding the chronicity of abuse. In the current study, as the number of DHR interactions increased, the exogenous variables shifted in the strength of their explanatory power. While all of the explanatory variables were significant in at least one of the equations, none, besides duration, were consistently significant. Future research could address this high level of variability among the explanatory variables.

The goal of this study was part exploratory, part explanatory. Prior research has not explored the sequencing of the abuse and delinquency experiences and the involvement of DHR and DJJ in predicting delinquent outcomes. The data from this study suggest that both sequencing and governmental intervention are important to understanding a link between maltreatment and delinquency. Additionally, this study has suggested that characteristics of the abuse and delinquency experiences are important factors in predicting future delinquency. However, as these results are limited, only future research can ascertain the level of importance that the abovementioned variables play in predicting, and ultimately preventing, delinquency.

Appendix A. Tables

Table 1: Frequency of DHR and DJJ Sequences of Interaction

<i>Sequencing of Prior Interaction(s)</i>	<i>Delinquent at 2nd Interaction (%)</i>	<i>N</i>
DHR	48.7	4728
<i>Delinquent at 3rd Interaction (%)</i>		
DHR, DHR	30	2426
DHR, DJJ	13.4	2302
<i>Delinquent at 4th Interaction (%)</i>		
DHR, DHR, DHR	35.7	1699
DHR, DHR, DJJ	36.9	727
DHR, DJJ, DHR	28.5	537
DHR, DJJ, DJJ	75.6	308
<i>Delinquent at 5th Interaction (%)</i>		
DHR, DHR, DHR, DHR	26.8	1092
DHR, DHR, DHR, DJJ	45.5	607
DHR, DHR, DJJ, DHR	27.9	369
DHR, DHR, DJJ, DJJ	26.5	268
DHR, DJJ, DHR, DHR	28.9	204
DHR, DJJ, DJJ, DHR	0	75
DHR, DJJ, DHR, DJJ	48.4	153
DHR, DJJ, DJJ, DJJ	36.9	233

Table 2: Cross-Tabulation between Characteristics of DHR as 1st Interaction and Delinquency as the 2nd Interaction

<i>Variable</i>	<i>Delinquent at 2nd Interaction (%)</i>	<i>N</i>	<i>χ²</i>
<i>Gender</i>			2.748
Male	49.7	2882	
Female	47.2	1846	
<i>Race</i>			20.241**
Black	45.7	2549	
White	52.2	2179	
<i>Type of Abuse</i>			130.816**
Physical	52.9	1866	
Neglect	41	1460	
Sexual	62.5	730	
<i>Duration of DHR Case</i>			2.166
< 6 mos.	48.5	4065	
6-11 mos.	51.5	454	
1 yr. +	45.9	209	
<i>Over Age 12 at start of DHR Case</i>			221.471**
Yes	57.5	2833	
No	35.5	1895	
<i>Institutionalized as Response to DHR Case</i>			32.492**
Yes	31.9	270	
No	49.7	4458	

*p<.05, **p<.01

Table 3: Cross-Tabulation between Characteristics of DHR as 2nd Interaction and Delinquency as the 3rd Interaction

<i>Variable</i>	<i>Delinquent at 3rd Interaction (%)</i>	<i>N</i>	χ^2
<i>Gender</i>			0.146
Male	25.9	2882	
Female	25.4	1846	
<i>Race</i>			0.283
Black	25.3	2549	
White	26	2179	
<i>Type of Abuse</i>			381.087**
Physical	37.6	925	
Neglect	33.9	1125	
Sexual	47.2	371	
<i>Duration of DHR Case</i>			690.594**
< 6 mos.	33.7	2260	
6-11 mos.	47.2	511	
1 yr. +	47.6	309	
<i>Over Age 12 at start of DHR Case</i>			352.408**
Yes	37.7	2347	
No	13.8	2381	
<i>Institutionalized as Response to DHR Case</i>			10.501**
Yes	32.4	408	
No	25	4320	

*p<.05, **p<.01

Table 4: Cross-Tabulation between Characteristics of DHR as 3rd Interaction and Delinquency as the 4th Interaction

<i>Variable</i>	<i>Delinquent at 4th Interaction (%)</i>	<i>N</i>	χ^2
<i>Gender</i>			4.975*
Male	15.1	2882	
Female	17.5	1846	
<i>Race</i>			10.578**
Black	17.6	2549	
White	14.1	2179	
<i>Type of Abuse</i>			440.714**
Physical	33.7	564	
Neglect	31.3	728	
Sexual	32	222	
<i>Duration of DHR Case</i>			1032.387**
< 6 mos.	31.2	1498	
6-11 mos.	43.1	327	
1 yr. +	47.8	232	
<i>Over Age 12 at start of DHR Case</i>			589.027**
Yes	32.6	1793	
No	5.9	2935	
<i>Institutionalized as Response to DHR Case</i>			128.230**
Yes	36	394	
No	14.2	4334	

*p<.05, **p<.01

Table 5: Cross-Tabulation between Characteristics of DHR as 4th Interaction and Delinquency as the 5th Interaction

<i>Variable</i>	<i>Delinquent at 5th Interaction (%)</i>	<i>N</i>	χ^2
<i>Gender</i>			0.362
Male	9.4	2882	
Female	10	1846	
<i>Race</i>			19.047**
Black	11.4	2549	
White	7.6	2179	
<i>Type of Abuse</i>			547.162**
Physical	30.1	276	
Neglect	28.3	442	
Sexual	41.3	126	
<i>Duration of DHR Case</i>			1521.067**
< 6 mos.	30.5	882	
6-11 mos.	45.6	217	
1 yr. +	56.1	157	
<i>Over Age 12 at start of DHR Case</i>			729.693**
Yes	28.9	1254	
No	2.7	3474	
<i>Institutionalized as Response to DHR Case</i>			307.034**
Yes	36.4	346	
No	7.5	4382	

*p<.05, **p<.01

Table 6: Cross-Tabulation between Characteristics of DHR as First Interaction and DJJ as Second and Third Interactions and Chronic Delinquency

<i>Variable</i>	<i>Delinquent 3 or More Times (%)</i>	χ^2
<i>Gender</i>		
Male	39.1	131.456**
Female	23	
<i>Race</i>		
Black	33.3	0.539
White	32.3	
<i>Type of Abuse</i>		
Physical	33.1	37.731**
Neglect	33.8	
Sexual	24.2	
<i>Duration of DHR Case</i>		
< 6 mos.	32.4	3.828
6-11 mos.	33.7	
1 yr. +	38.8	
<i>Over Age 12 at Start of DHR Case</i>		
Yes	31.2	8.218**
No	35.2	
<i>Placed outside Home as Response to DHR Case</i>		
Yes	40.7	8.182**
No	32.3	
<i>Over Age 12 at Start of 1st DJJ Record</i>		
Yes	33	0.216
No	32.2	
<i>Institutionalized as a Response to 1st DJJ Record</i>		
Yes	74.3	582.424**
No	26.3	
<i>Over Age 12 at Start of 2nd DJJ Record</i>		
Yes	61.1	1557.141**
No	7.1	
<i>Institutionalized as a Response to 2nd DJJ Record</i>		
Yes	83.5	251.070**
No	30.5	

*p<.05, **p<.01

Table 7: Cross-Tabulation between Characteristics of DHR as Second Interaction and DJJ as Third and Fourth Interactions and Chronic Delinquency

	<i>Variable</i>	<i>Delinquent 3 or More Times (%)</i>	χ^2
	<i>Gender</i>		131.456**
Male		39.1	
Female		23	
	<i>Race</i>		0.539
Black		33.3	
White		32.3	
	<i>Type of Abuse</i>		67.510**
Physical		39.7	
Neglect		38.8	
Sexual		29.9	
	<i>Duration of DHR Case</i>		111.196**
< 6 mos.		23.1	
6-11 mos.		37.7	
1 yr. +		37.4	
	<i>Over Age 12 at Start of DHR Case</i>		61.010**
Yes		38.2	
No		27.5	
	<i>Placed outside Home as Response to DHR Case</i>		11.814**
Yes		40.4	
No		32.1	
	<i>Over Age 12 at Start of 1st DJJ Record</i>		0.216
Yes		33	
No		32.2	
	<i>Institutionalized as a Response to 1st DJJ Record</i>		582.424**
Yes		74.3	
No		26.3	
	<i>Over Age 12 at Start of 2nd DJJ Record</i>		1557.141**
Yes		61.1	
No		7.1	
	<i>Institutionalized as a Response to 2nd DJJ Record</i>		251.070**
Yes		83.5	
No		30.5	

*p<.05, **p<.01

Table 8: Demographic Characteristics of the Delinquents and Comparison Group in 6 Predictive Models

		<i>Gender</i>		<i>Race</i>		<i>Over Age 12 at start of DHR or DJJ Case Yes</i>
	<i>N</i>	Male	Female	Black	White	
<i>One Delinquent Record</i>						
EQ.1						
Delinquent (%)	2302	62.2	37.8	50.6	49.4	79.5
Comparison (%)	2426	59.8	40.2	57.1	42.9	64.8
EQ.2						
Delinquent (%)	1522	60.9	39.1	51.9	48.1	82.1
Comparison (%)	2236	58.1	41.9	57	43	81.3
EQ.3						
Delinquent (%)	1580	63.2	36.8	53.9	46.1	85.9
Comparison (%)	2284	56.4	43.6	63.8	36.2	70
EQ.4						
Delinquent (%)	1347	66.7	33.3	58.5	41.5	88.8
Comparison (%)	1932	62.8	37.2	62.3	37.7	70.1
<i>Chronic Delinquent Record</i>						
EQ.1						
Delinquent (%)	308	59.4	40.6	46.8	53.2	89.3
Comparison (%)	3450	59.2	40.8	55.7	44.3	80.9
EQ.2						
Delinquent (%)	1751	60.3	39.7	52.9	47.1	82.9
Comparison (%)	2002	58.5	41.5	56.9	43.1	80.8

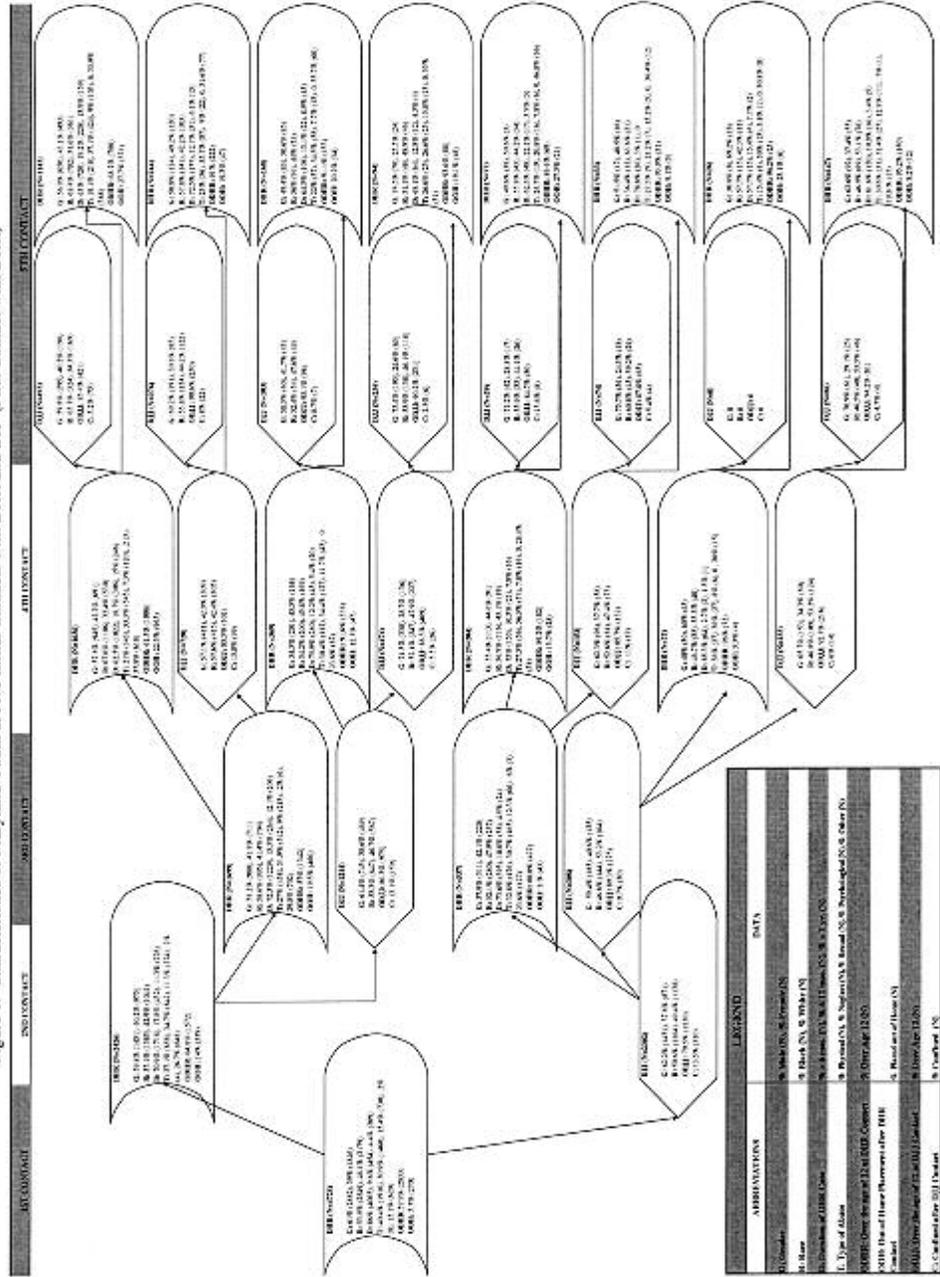
Table 9: Multivariate Logistic Regression of Delinquency on Characteristics of Delinquents and their DHR / DJJ Experiences

<i>Variable</i>	<i>One Delinquent Record</i>				<i>Chronic Delinquent Record (3 or more incidents)</i>	
	EQ.1	EQ.2	EQ.3	EQ.4	EQ.1	EQ.2
Gender (Male)	-.245*	-.137	0.166	-.017	-.490	-.434*
Race (White)	0.099	0.101	-.016	-.275*	0.09	0.054
<i>Maltreatment Type</i>						
Neglect (compared to Physical)	-.393*	-.222*	-.145	-.004	-.014	-.079
Sexual (compared to Physical)	.395*	.352*	-.065	.680*	-.471*	-.353*
Over Age 12 at Time of DHR Case	.878*	.218*	-.279*	-1.282*	-.171	0.061
Institutionalized as Response to DHR Case	-.576*	-.759*	-.562*	0.201	0.262	0.19
<i>Duration of DHR Case</i>						
6-11 mos. (compared to < 6 mos.)	0.243*	.631*	.472*	.584*	0.071	-.087
> 1 yr. (compared to < 6 mos.)	0.29	.912*	.781*	.835*	-.152	0.078
Over Age 12 at Time of 1st DJJ Case					-1.522*	-1.585*
Institutionalized as Response to 1st DJJ Case					1.237*	1.234*
Over Age 12 at Time of 2nd DJJ Case					3.473*	3.238*
Institutionalized as Response to 2nd DJJ Case					.717*	.652*
Intercept	-.433*	-.764*	-.590*	0.304	-1.598*	-1.325
χ^2	357.173*	108.120*	55.276*	109.269*	2162.593*	1350.996*

* p< .05

Appendix B. Figure

Figure 1: Characteristics of Maryland Youth at Five Initial Contacts with DHR and DJJ (First Contact with DHR)



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