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Investigating Child Maltreatment's Link to Subsequent Juvenile Delinquency: Does Parental Attachment Have a Mediating Effect?

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It is no secret that family processes significantly impact child maltreatment^[1] and delinquency, as they commonly originate within the family unit (Buehler, 2020; Mack et al., 2015; Prinzie et al., 2016; Trickett & McBride-Chang, 1995). Research shows a relationship between child maltreatment and delinquency (Logan-Greene & Jones, 2015; Maschi et al., 2008); however, only recently have criminologists considered the various mechanisms operating between the two concepts (Azimi & Connolly, 2022; Bunch et al., 2018; Watts, 2017). Given that both maltreatment and delinquency stem from the family unit, the function of parental attachment^[2] is an important area to explore to clarify the maltreatment-delinquency link.

While a great deal of research has helped advance our current understanding of the prevalence and common correlates of violent criminal victimization during adolescence, comparatively less is known about violent criminal victimization during the transition from late adolescence to adulthood, especially in large population-based samples of youth. This is problematic for two key reasons. First, if there is not an understanding of how common this detrimental form of victimization is across this period of the life span - when many individuals are transitioning from college into the workplace and taking on other major life roles (e.g., spouse, parent, or caregiver) - then intervention programming will be limited in knowing when services should be delivered to be most effective.

Empirical work establishes an association between child maltreatment and various negative outcomes across their development, such as delinquency, risky sexual behavior, substance use, and property offending (Logan-Greene & Jones, 2015; Maschi et al., 2008; Watts & McNulty, 2013; Watts, 2017; Yoon et al., 2018). However, experiencing maltreatment does not always predict future adversity. In fact, research shows that adolescents' ability to engage in healthy responses to adversity can stem from factors related to their family, such as their secure parental attachments (Brown & Shillington, 2017; Xia et al., 2018). This suggests that maltreated adolescents who do not experience negative outcomes have at least one secure relationship with a parental caregiver.

Nevertheless, a dearth of literature exists which examines the distinct mediating^[1] role of maternal and paternal attachment connecting child maltreatment with subsequent delinquency (Herrenkohl et al., 2003; Salzinger et al., 2007; Yoon et al., 2017). This lack of research is surprising, given that child maltreatment is most perpetrated by parental caregivers (National Data Archive on Child Abuse and Neglect, 2005) and the widespread understanding that one's family is a central factor in their probability of engaging in delinquency (Brown & Shillington, 2017; Salzinger et al., 2007; Watts & McNulty, 2013; Watts, 2017; Xia et al., 2018). This research gap is also shocking, given the empirical evidence that children often have different relationships with their maternal and paternal figures (Biswal, 2020; Johnson, 1987; Kenny et al., 1998; Salzinger et al., 2007), cultivating distinct attachments (e.g., secure vs. insecure attachments) and consequent behaviors (e.g., poor mentalizing abilities and delinquency).

Background

British psychologist, John Bowlby, developed attachment theory, which can help frame why parental attachment mediates the relationship between child maltreatment and delinquency. Bowlby (1973) posits that attachment security developed during childhood affects one's psychological functioning and coping strategies over their lifespan. Arguably, the most significant factor impacting a child's attachment security is their exposure to maltreatment (i.e., perpetrated by a parental caregiver). Maltreatment puts a child's safety and well-being at risk and leads to adverse coping and behavioral outcomes (Bowlby, 1982). Child maltreatment can lead to the development of insecure parental attachment relationships due to changes in the way a child perceives the perpetrator (Bowlby, 1982). For example, neglecting maternal caregivers may not provide responsive caregiving to meet their child's needs, such as the lack of emotional warmth or failure to acknowledge one's cries for needed attention or comfort (Strathearn, 2011).

^[1] *Child maltreatment* is defined as any abuse and neglect that occurs to children under 18 years old, which places a child's health and development at risk in the context of a relationship of trust or power (e.g., physical abuse, emotional abuse, sexual abuse, neglect, negligence, and exploitation; The World Health Organization 2022).

^[2] *Parental attachment* encompasses the aspects of a child's relationships with their primary caregivers that ensure their safety, security, and protection (Bowlby, 1982).

^[3] A *mediating* variable explains why or how two constructs are related (MacKinnon, 2012). More formally, an independent variable causes a mediating variable which then causes a dependent variable.

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Similarly, exposure to any type of maltreatment can lead to insecure parental attachment and difficulties in emotion regulation (Crittenden & Ainsworth, 1989). The coupling of maltreatment exposure with insecure parental attachment further increases a child's risk of developing maladaptive coping responses. This report considers delinquency as a form of maladaptive coping, which has been examined as such in prior literature (Yoon et al., 2017).

Empirical research provides some support for the mediating role of parental attachment between the maltreatment-delinquency association, but it has done so in a fragmented way that lacks an appropriate theoretical lens. For instance, there is evidence that child maltreatment heightens adolescents' risk of engaging in delinquency (Logan-Greene & Jones, 2015; Watts, 2017). There is also evidence that child maltreatment and parental attachment are related constructs, as maltreatment exposure is predictive of forming insecure parental attachments (Nowalis et al., 2022). Moreover, evidence suggests insecure parental attachment increases one's risk of subsequent delinquency (Hoeve et al., 2012; Salzinger et al., 2007). Nevertheless, no study examines the full extent to which maternal and paternal attachment distinctly operate between child maltreatment and subsequent delinquency. The purpose of the study summarized in this report is to address the identified gaps in the research through the examination of the potential mediating role of maternal and paternal attachment between maltreatment and delinquency, using Bowlby's attachment theory as a guiding lens. The primary research question is: Does secure parental attachment mediate the relationship between child abuse/neglect and subsequent delinquency? Prior to testing this indirect effect, the direct relationships between child maltreatment, parental attachment, and delinquency were examined and included in the final statistical figures.

Data and Measures

To test whether secure maternal and paternal attachments mediate the relationship between maltreatment and subsequent delinquency, this report uses restricted data from the National Longitudinal Study of Adolescent to Adult Health (Add Health). Add Health comprises a nationally representative sample of adolescents in the United States in grades 7 through 12. Five waves of data have been collected, the most recent in 2018. Wave I data comprises information from an in-school questionnaire, in-home interview, and parent in-home questionnaire (N=20,745). The study summarized here uses data from the in-home interviews from Wave I, II, and III.

Wave I was collected in the years 1994-1995 when respondents were in grades 7-12. Wave II was collected in 1996 when respondents were in grades 8-12. Wave III was collected in the years 2001-2002 when respondents were ages 18-26. The final sample size contains 13,570 adolescents, which was obtained by excluding those who were missing on the Wave II cross-sectional weight from the final analysis (see Chen & Chantala, 2014). All missing cases were imputed using multiple imputation by chained equations (MICE). The descriptive statistics results are presented in Table 1.

Table 1. Descriptive Statistics (N=13,570)

Dependent Variable at Wave II	$\bar{x}/\%$	SD	Range
Delinquency (1=yes)			
Damage property	13.40%	0.34	0-1
Drove car without permission	8.00%	0.27	0-1
Stole from house or building	4.20%	0.20	0-1
Painted graffiti on property	7.10%	0.26	0-1
Carry weapon to school	3.80%	0.19	0-1
Pulled a knife or gun on someone	4.60%	0.21	0-1
Shot or stabbed someone	1.90%	0.13	0-1
Used/threatened to use a weapon	3.70%	0.19	0-1
Sell marijuana or other drugs	7.50%	0.26	0-1
Independent Variables at Waves I & III			
Child abuse (1=yes)			
Physical abuse	31.10%	0.46	0-1
Sexual abuse	5.00%	0.22	0-1
Child neglect (1=yes)			
Supervision neglect	41.50%	0.49	0-1
Neglect of basic needs	12.40%	0.33	0-1
Maternal attachment (1=yes)			
Mother warm & loving	84.50%	0.36	0-1
Satisfied with relationship	82.60%	0.38	0-1
Satisfied with communication	74.60%	0.44	0-1
Paternal attachment (1=yes)			
Father warm & loving	57.20%	0.49	0-1
Satisfied with relationship	57.40%	0.49	0-1
Satisfied with communication	53.00%	0.50	0-1
Control Variables at Wave I			
Age	14.90	1.69	10-19
Gender (1=male)	57.9%	0.49	0-1
Race	1.99	1.20	1-4
Mother's education	2.49	1.12	0-4
Adopted (1=yes)	5.40%	0.23	0-1

Delinquency. Nine measures from Wave II were used to capture the observed dependent variable of delinquency. Respondents were asked how often they drove a car without the owner's permission, went into a house or building to steal something, deliberately damaged property that did not belong to them, and painted graffiti or signs on someone else's property or in a public space (i.e., twelve months before being interviewed). Additionally, respondents were asked how often they pulled a knife or gun on someone, shot or stabbed someone, used or threatened to use a weapon to get something from someone, carried a weapon to school, and sold marijuana or other drugs. Each measure of delinquency was recorded as whether a respondent engaged in the mentioned act (1 meaning "yes" and 0 meaning "no"). After conducting an exploratory factor analysis (EFA), these nine items loaded on a 1-factor solution (Eigenvalue = 5.694), and the factor loadings exceeded 0.60. A confirmatory factor analysis (CFA) of the items produced a good model fit (RMSEA = 0.048, CFI = 0.987, SRMR = 0.041; Muthén: 1978).

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Child Maltreatment. Four retrospective measures from Wave III are used to capture the observed independent variables of child abuse and neglect. Participants were asked about abuse and neglect by their parents or other adult caregivers occurring before the start of sixth grade. A CFA of the maltreatment items revealed a 2-factor solution was most appropriate (i.e., abuse and neglect), producing a good model fit (RMSEA = 0.054, CFI = 0.991, SRMR = 0.028). Two items captured *child abuse*. Respondents were asked how often their parents or adult caregivers slapped, hit, or kicked them (i.e., physical abuse), and how often one of their parents or adult caregivers touched them in a sexual way, forced the respondent to touch the perpetrator in a sexual way, or forced the respondent to have sexual relations (i.e., sexual abuse). These two items were combined and dichotomously recoded so that 1 meant “yes to any type,” and 0 meant “no abuse.” Two items captured *child neglect*. Respondents were asked how often their parents or adult caregivers had not taken care of their basic needs and how often they left them home alone when an adult should have been there. The two neglect items were combined and dichotomously recoded so that 1 meant “yes to any type,” and 0 meant “no neglect.”

Parental Attachment. Six measures from Wave I are used to account for the latent variable of parental attachment. These items follow themes from the Parental Attachment Questionnaire (Kenny, 1987). The selected items are used to conceptualize secure and insecure attachment (Hahm et al., 2003; Shen et al., 2021). An EFA of the six parental attachment items revealed that a 2-factor solution was most appropriate for these items (Eigenvalues = 2.217), and all factor loadings exceeded 0.9 for both factors. The two factors established were labeled maternal attachment and paternal attachment. A CFA confirmed a good model fit (RMSEA = 0.020, a CFI = 1.000, SRMR = 0.014). For maternal attachment, respondents reported if, most of the time, they felt their mother was warm and loving towards them, if they were satisfied with the relationship with their mother, and if they were satisfied with the way they communicate with their mother. These same three items were used to measure paternal attachment, with “mother” being substituted by “father.” The six attachment items were recoded into dichotomous measures with 0 meaning “not satisfied/ not warm and loving” and 1 meaning “satisfied/ warm and loving.”

Control Variables. Several control variables were also included in the analysis (all from Wave I). The age of the respondents was measured in years. *Gender* was coded as 0 for “female” and 1 for “male.” *Race/ethnicity* was coded as 1 for “white, non-Hispanic,” 2 for “black, non-Hispanic,” 3 for “Hispanic,” and 4 for “other race/ethnicity.” To account for *socioeconomic status*, respondents were asked to list their mother’s highest educational attainment (Yun et al., 2011). The variable ranges from zero to four: 0 coded as “no school,” 1 coded as “less than high-school,” 2 coded as “high school or equivalent program,” 3 coded as “some college,” and 4 coded as “college or higher education.” *Adoption* was coded as 0 for “no” and 1 for “yes.” Given the empirical evidence suggesting that adopted adolescents experience challenges across multiple domains (behavioral, emotional, and interpersonal), increasing their risk of externalizing-behavioral problems (Gallarín et al., 2021), we control for adoption in this study.

Analytic Strategy

Regarding the analytic strategy, structural equation modeling (SEM) is utilized with Mplus version 8.5 (Muthén & Muthén, 1998-2010). SEM is the most appropriate form of mediation analysis to ensure proper measurement of latent constructs (e.g., parental attachment) and to account for any measurement error. A series of measurement invariance (MI) tests were conducted to confirm the measurement model. Once the measurement model was established by including several cross-item correlations and confirming overall model fit, the structural model was assessed for any potential causal dependencies between the endogenous and exogenous variables using a weighted least squares (WLSMV) estimator (Asparouhov & Muthén, 2022). Notably, two SEM models were conducted. The first SEM model examined the potential mediating effects of parental attachment (i.e., maternal and paternal) between child abuse and delinquency. The second SEM model examined the potential mediating effects of parental attachment (i.e., maternal and paternal) between child neglect and delinquency.

Results

The direct and indirect effects of the exogenous variables predicting the probability of delinquency are visually displayed in Figures 1 and 2. Experiencing child abuse significantly increased the probability of engaging in delinquent behavior ($b = 0.129$, $S.E. = 0.043$, $p < .01$). In the abuse model, reporting secure maternal attachment significantly decreased the probability of engaging in delinquency ($b = -0.071$, $S.E. = 0.014$, $p < .001$). Similarly, reporting secure paternal attachment significantly decreased the probability of engaging in delinquency ($b = -0.050$, $S.E. = 0.023$, $p < .05$).

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Notably, the hypothesis that parental attachment mediates the child abuse and delinquency relationship was supported. Maternal attachment partially mediated the effect between child abuse and delinquency; experiencing abuse significantly decreased the probability of reporting secure maternal attachment, which then increased the probability of engaging in delinquency ($b = 0.013$, $S.E. = 0.004$, $p < .001$). Paternal attachment did not significantly mediate the effect between abuse and delinquency.

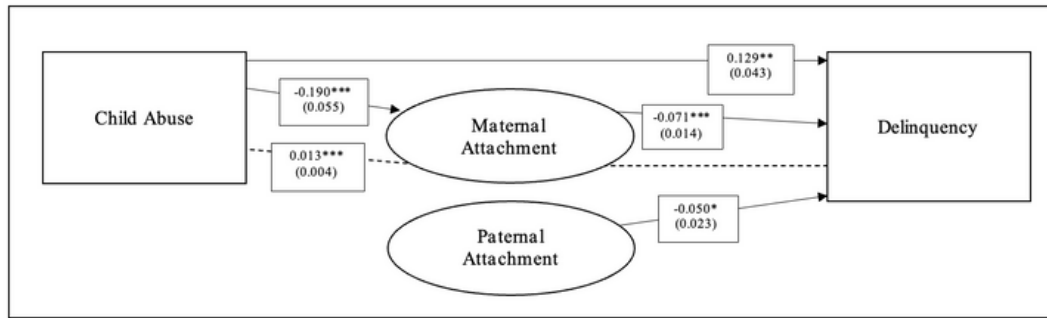


Figure 1. Effects of Child Abuse Predicting Delinquency (N=13,570).

** $p < .01$; *** $p < .001$

Model fit: CFI = 0.984; RMSEA = 0.019; SRMR = 0.067

Note. The control variables are omitted from the figure 1 for clarity. The solid lines denote the significant direct effects of child abuse and parental attachment on delinquency. The dashed line denotes the significant indirect effect of maternal attachment between child abuse and delinquency. Tables 2 and 3 contain more information on the direct and indirect effects for the models. Standard errors are presented in the parentheses.

Turning to the neglect model, experiencing child neglect increased the probability of engaging in delinquency ($b = 0.129$, $S.E. = 0.039$, $p < .001$). Reporting secure maternal ($b = -0.078$, $S.E. = 0.015$, $p < .001$) and paternal attachment ($b = -0.054$, $S.E. = 0.022$, $p < .05$) significantly decreased the probability of engaging in delinquency. Notably, the hypothesis that parental attachment mediates child neglect and delinquency was supported. Maternal attachment partially mediated neglect and delinquency; experiencing neglect significantly decreased the probability of reporting secure maternal attachment, which then increased the probability of engaging in minor delinquency ($b = 0.015$, $S.E. = 0.004$, $p < .001$). Paternal attachment did not significantly mediate this relationship.

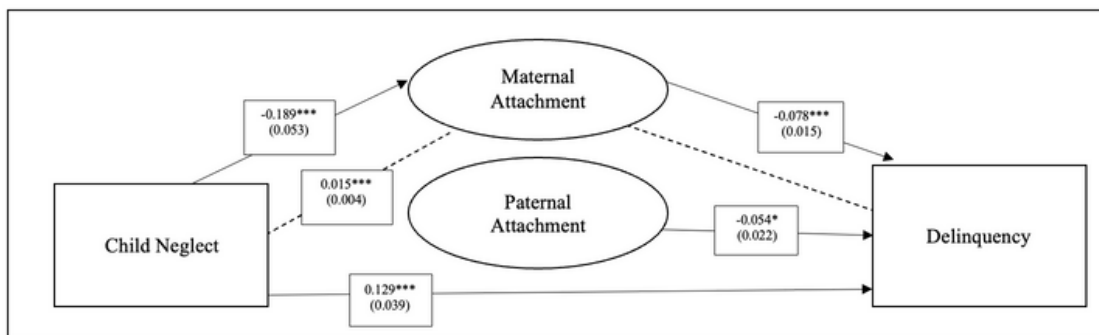


Figure 2. Effects of Child Neglect Predicting Delinquency (N=13,570).

* $p < .05$; *** $p < .001$

Model fit: CFI = 0.983; RMSEA = 0.019; SRMR = 0.072

Note. The control variables are omitted from the figure 2 for clarity. The solid lines denote the significant direct effects of child neglect and parental attachment on delinquency. The dashed line denotes the significant indirect effect of maternal attachment between child neglect and delinquency. Tables 2 and 3 contain more information on the direct and indirect effects for the models. Standard errors are presented in the parentheses.

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Discussion and Implications

This report provides a summary of findings using nationally representative data of adolescents to examine the potential mediation of parental attachment between child maltreatment and delinquent behavior. The statistical analysis produced several findings that warrant further discussion. In terms of the primary research question, the results provide some support for the hypothesis that parental attachment mediates the relationship between child maltreatment and subsequent delinquency. Specifically, maternal attachment partially mediates the relationship between child abuse and delinquency and child neglect and delinquency. Exposure to abuse and neglect lead to a decrease in the probability of forming secure maternal attachments, which then increase the probability of delinquency. Since child abuse and neglect are insignificantly related to paternal attachment, it is unsurprising that paternal attachment had no mediating effect on the maltreatment-delinquency association.

Through the lens of Bowlby's (1982) attachment theory, children form primary attachment bonds, usually with their primary caregivers. Studies such as one by West and colleagues (1998) suggest that adolescents' primary caregivers are typically maternal figures (i.e., with 91.5% of their sample identifying their mothers as their primary attachment figure). This majority may contribute to why maternal attachment operates as a significant mediating factor between delinquency and child maltreatment. Given that insecure maternal attachment partially explains the connection between child maltreatment and delinquency, child welfare caseworkers should aim to help foster healthy relationships between mothers and their children. Early maternal social support can help protect a child from negative outcomes, like delinquency, in the face of trauma (Brown & Shillington, 2017). Specifically, our measure of maternal attachment captured a child's feelings of warmth, communication, and relationship satisfaction. Child welfare programs seeking to build healthy child and maternal relationships should focus on these most intimate aspects of attachment.

Moreover, the insignificance of paternal attachment as a mediator may suggest that fathers are less emotionally sensitive in responding to the needs of their children. Research shows that compared to mothers, fathers provide lower emotional responsiveness and availability to their child's needs (Lovas, 2005). It is important, however, to note that insecure attachment to one's father increases the risk of delinquency, independent of child maltreatment. Thus, child welfare programs should also seek to strengthen the intimate aspects of youth's relationship with their father to reduce their risk of delinquency. More work is needed before implications can be made regarding the role of paternal attachment in the link between child maltreatment and delinquency. Understanding the role of parental attachment is essential, particularly for the rehabilitation of abused and neglected youth who are at a higher risk of future criminal justice system involvement.

Policy Implications for Texas

The current study's findings hold practical relevance for child maltreatment prevention and intervention efforts in Texas. The Texas Department of Family and Protective Services (DFPS) currently implements a variety of family-based support programs, including the "Parent Collaboration Group (PCB)," "Family-Based Safety Services (FBSS)," and "Responsible Fathering." These services operate to strengthen the ability of families to protect their children and reduce further threats to their safety. Located within the Texas DFPS, "Prevention and Early Intervention" (PEI) funds and partners with community-based programs to prevent delinquency and child maltreatment. This program identifies areas for intervention, including assisting families in crisis, providing parental education and home visiting services, and implementing mentoring and leadership development for youth. While these programs provide a promising start for the intervention of families once maltreatment occurs, more focus must be placed on building children's relationships with their maternal and paternal caregivers, who are statistically most likely the perpetrators of maltreatment. If the primary goal of these programs is to reduce children's risk of future adversity, our findings recommend they focus on fostering secure maternal relationships by addressing the intimate aspects of attachment (i.e., closeness, communication, and happiness).

Through these intervention efforts, youth can receive the help they need to heal, minimizing their future risk of offending. Future evaluations of the existing intervention and prevention efforts in Texas are needed to assess their success in rehabilitating high-risk youth and facilitate the development and implementation of similar programs at a national level. Ultimately, collaboration among empirical researchers, child welfare case workers, and leaders of family-based support programs is crucial to the future success and development of Texas's most vulnerable population.

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