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Effects of Physical and Emotional Child Abuse and Its Chronicity on Crime Into Adulthood

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Abstract

Analyses tested hypotheses that pertain to direct and indirect effects of parent-reported physical and emotional abuse on later self-reported criminal behavior in a sample of 356 adults of a longitudinal study of more than 30 years. Childhood antisocial behavior was included in analyses as a potential mediator. Physical abuse only predicted adult crime indirectly through childhood antisocial behavior, whereas emotional abuse predicted adult outcome both directly and indirectly. Chronicity of physical abuse was indirectly related to later crime in a subsample test for those who had been physically abused ($n = 318$), whereas chronicity of emotional abuse was neither directly nor indirectly related to adult crime in a test of those who had been emotionally abused ($n = 225$). Implications for future research and practice are discussed.

Keywords

child abuse type; crime; antisocial behavior; mediation

There is relatively strong evidence that physical and emotional child abuse is associated with later forms of antisocial behaviors in children, adolescents, and young adults (T. I. Herrenkohl, 2011). Although there are exceptions, published findings are in large part from cross-sectional studies in which a temporal ordering of variables is uncertain (e.g., Rosenbaum & Bennett, 1986; Sack & Mason, 1980). In addition, there has been very little published research on the unique effects on adult crime of different types of child abuse—physical versus emotional—and on the compounding risk of abuse chronicity (Higgins, 2004; Higgins & McCabe, 2000; Schaaf & McCanne, 1998; Wind & Silvern, 1992).

Findings of several studies are relevant to the current investigation, which focuses on prospectively measured physical and emotional abuse occurrence and chronicity in relation to adult self-reported crime. Smith and Thornberry (1995) found that a measure of officially recorded child abuse and neglect was associated with moderate to more serious forms of crime, including property damage, burglary, theft, and assault, in adolescent youth. Zingraff, Leiter, Myers, and Johnsen (1993) found that a history of child physical and sexual abuse, also measured using official record data, was associated with status offenses and other forms

of antisocial behavior in adolescence, but the association between abuse types and the outcome was not maintained when demographics (gender, race, and family structure) were taken into account. English, Widom, and Brandford (2002) found higher rates of arrests at age 24 years among participants of their study who had been abused or neglected. Furthermore, Widom and Maxfield (2001) determined that official abuse and neglect reports predicted arrests for violent and nonviolent crime to age 40 years.

Although few in number, several studies have focused on whether different subtypes of abuse, and abuse chronicity, help explain who is at highest risk for later antisocial behavior (e.g., English, Graham, Litrownik, Everson, & Bangdiwala, 2005; Manly, Cicchetti, & Barnett, 1994; Manly, Kim, Rogosch, & Cicchetti, 2001). In the previously mentioned study by Smith and Thornberry (1995), the researchers found an association between the frequency of abuse reports and youth antisocial behavior as well as the number of police contacts and arrests for serious and violent crime at age 13 through 17 years. That is, the more times abuse was reported, the more likely were later antisocial behavior and arrests. Jonson-Reid, Kohl, and Drake (2012) found that multiple child abuse reports (a proxy measure of abuse chronicity) increased the risk of official juvenile violent offenses as well as substance abuse and child abuse perpetration in adulthood. Of note, however, once earlier forms of antisocial behavior in childhood and adolescence were taken into account, the association between abuse reports and adult crime was attenuated. Furthermore, Zingraff et al. (1993) found no unique association between chronic abuse and later crime in adolescence, after accounting for initial reports of abuse. Thus, findings on abuse chronicity and crime are inconclusive.

As reflected in some of the mentioned findings, a relation between child abuse and adult crime may extend a developmental pattern of risk and behavior that begins much earlier in life (Klika, Herrenkohl, & Lee, 2013). Evidence of this pattern is shown in several other studies. In one, Widom, Schuck, and White (2006) found that child abuse (and neglect) predicted early aggression before age 15 years and that adolescent aggression was, in turn, predictive of later violent crime arrests. Similarly, Topitzes, Mersky, and Reynolds (2011) found that childhood externalizing behaviors mediated the association between substantiated child abuse reports and adult crime convictions. Furthermore, Klika et al. (2013) found that physical child abuse reports predicted antisocial behavior in late childhood and that this early form of problem behaviors predicted crime in adulthood.

There are several explanations for why this pattern exists (T. I. Herrenkohl, 2011). Social learning theory (Akers, 1985; Bandura, 1977; Dodge, Bates, & Pettit, 1990) provides that abused children learn to interact with others in a manner consistent with the way others have interacted with them. Thus, when abuse and hostility define a child's relationships with parents and peers, those same qualities carry forward into the child's relationship with others outside the home. It is thus assumed that violence is a learned behavior that children repeat in their adult relationships. Some children with abuse histories will lash out aggressively against others even without direct provocation (Dodge et al., 1990). Dodge and colleagues (1990) have actually shown that abused children frequently misinterpret the intentions of others, such that they "read" others as being aggressive when they are not.

General strain theory (Agnew, 1992, 1997) offers a variation on this perspective that emphasizes the underlying emotional impact of abuse on children. For example, Agnew's strain theory suggests that the experience of being abused leads a child to develop negative emotions (e.g., anger, frustration, shame) that drive him or her to perpetrate antisocial behavior when the surrounding context allows it or draws it out. Because abused children can lack the ability to regulate emotions, antisocial behavior may, for some, be a reflection of strong emotions over which they have little direct control. By extension, the repetitive strain of chronic abuse may increase even further the likelihood of antisocial behavior because the emotional effects of repeated abuse—physical or emotional—are greater.

OBJECTIVES

This study aims to fill gaps in the research literature by investigating the developmental progression from physical and emotional child abuse to later crime among adults. Our outcome measure of crime includes violent and nonviolent forms of that behavior, which are consistent with acts that could result in arrest, such as gang fighting, theft, robbery, and drug selling. We also examine questions about the chronicity of abuse and the possibility of an even higher risk for adult crime among those in the sample. In our study, we use parent reports of abusive disciplining to derive measures of physical and emotional abuse. We also account for official record reports of child maltreatment in the analyses by including the official records as a covariate. Explanations are provided in the following section with respect to how each of the abuse or maltreatment variables—parent report versus official report—are positioned in estimated models. Covariates also include childhood socioeconomic status (SES), gender, and race/ethnicity.

METHODS

Data and Procedure

Data are from the Lehigh Longitudinal Study, a prospective study of long-term developmental outcomes subsequent to child maltreatment, which began in 1973–1974 as the evaluation portion of a child abuse and neglect treatment and prevention program in two counties of eastern Pennsylvania (R. C. Herrenkohl, Herrenkohl, Egolf, & Wu, 1991; T. I. Herrenkohl et al., 2013; T. I. Herrenkohl, Klika, Herrenkohl, Russo, & Dee, 2012). About a half of the original sample were selected into the study from child welfare agency abuse and neglect caseloads ($n = 249$), either substantiated or being investigated. The other half were selected from several group settings (Head Start centers, daycare, and nursery programs) in the same two-county area ($n = 208$). The original sample ($n = 457$) was composed of near equal numbers of males ($n = 248$) and females ($n = 209$). The racial and ethnic composition of the sample is consistent with the makeup of the two-county area from which participants were drawn: 1.3% ($n = 6$) American Indian/Alaska Native, 0.2% ($n = 1$) Native Hawaiian or other Pacific Islander, 5.3% ($n = 24$) Black or African American, 80.7% ($n = 369$) White, 11.2% ($n = 51$) more than one race, and 1.3% ($n = 6$) unknown. Eighty-six percent of children were from two-parent households. About 61% of families were in poverty according to income-to-needs ratio in 1976 ($n = 276$).

The first “preschool” wave of the study took place in 1976–1977 when children recruited into the study were 18 months to 6 years of age. A second “school-age” assessment was conducted in 1980–1982. A third “adolescent” assessment of all youth participants (91% of the original sample) was conducted in 1990–1992, and the participants were 18 years of age on average. For an adult wave of the study, approximately 80% of the original sample still living ($n = 357$) was located and assessed on a comprehensive, interviewer-administered survey in 2010. The participants were 36 years of age (range = 31–41) on average. The sample remains gender balanced: 171 (47.9%) females and 186 (52.1%) males. The ethnic/racial composition was also maintained, with the high majority (79.1%, $n = 280$) being White. Analyses of the currently retained sample showed that although more of the original child welfare group was lost to attrition, there were no significant group differences in gender, age, childhood SES, or ratings of parent-reported physically abusive discipline (R. C. Herrenkohl, Egolf, & Herrenkohl, 1997). Study procedures were approved by the Human Subjects Division at the University of Washington and the Office of Research and Sponsored Programs at Lehigh University.

Measures

Data on *physical and emotional child abuse* are measured by the questions asked of parents focused on their and other caregivers’ use of physically (12 items) and emotionally (7 items) abusive disciplining strategies (see Appendix A for the list of items). These items are defined as abuse in this study based on severity rating by a group of 41 child welfare workers on a 5-point scale (5 = *abusive*, 4 = *severely punishing*, 3 = *mildly punishing*, 2 = *mildly rewarding*, 1 = *highly rewarding*). The abuse items included in this study were all rated in the 4.0–5.0 (severely punishing to abusive) severity range. Abuse data were collected in the preschool and school-age waves of the study with the same items across the time. In the preschool wave, parents were asked about their physical disciplining practices (a) in the last 3 months and (b) prior to that last 3 months while emotional disciplining practices were measured for the last 3 months only. At the school-age wave, parents were asked about their physical and emotional disciplining over the past year.

In this study, the two types (physical and emotional) of child abuse are examined in two measurement dimensions: (a) whether abuse occurred and (b) whether the occurrence was repetitive across developmental phases—chronicity. Dichotomous (yes/no) variables for physical and emotional abuse indicated whether or not a child had been abused at all either physically or emotionally, across the times assessed (in preschool and in the school age). Abuse chronicity was captured by the number of the times in which abusive practices were used. Physical abuse chronicity ranges from 0 to 3 and *emotional abuse* from 0 to 2 with *no abuse* = 0 for both.

Official child welfare involvement was included as a covariate. This variable reflects the group composition of the original sample recruited at the preschool wave of the study. Child welfare involvement was coded *yes* = 1 ($n = 181$, 50.8%) and *no* = 0 ($n = 175$, 49.2%) in the adult sample. This variable was included in analyses to account for the original design of the sample and the overlap and divergence between official reports and parental reports.

Correlations for the two measures (Table 1) suggest that they may capture different aspects of child abuse.

Childhood antisocial behavior was included as a mediator of child abuse on adult crime. Data for the measure are from a modified version of the Child Behavior Checklist (CBCL; Achenbach, 1978, 1988). This instrument was administered to parents during the school-age wave of the study. Items comprise two subscales: past-year child aggression (18 items including “teases,” “cruel,” and “destroys things”) and past-year child delinquency (10 items including “vandalizes,” “steals,” and “runs away”). Items from the aggression and delinquency subscales of the CBCL ($\alpha = .84$ and $.71$, respectively) were standardized and combined to create an overall composite of childhood antisocial behavior (Klika et al., 2013). The composite variable has a range of -1.66 to 4.27 , with a mean of -0.01 ($SD = 0.94$). This variable was log transformed to achieve approximate normality. After the transformation, the measure had a range of 0 – 1.94 , with a mean of 0.92 ($SD = 0.34$) and a skewness of 0.21 .

Adult crime was scaled from items on the Elliott, Dunford, and Huizinga (1987) Self-Reported Delinquency Scale that was used in the National Youth Survey (NYS). Items include “ever broken or tried to break into a building or vehicle,” “ever stolen or tried to steal a motor vehicle,” “ever been involved in a gang fight,” “ever had or tried to have sexual relations with someone against their will,” “ever paid someone for having sexual relations with you,” and “ever sold hard drugs” (see Appendix B for full items). Affirmative responses on each item ($0 = no$, $1 = yes$) were combined (summed) to form a composite scale. Although the possible range of scores for this measure is 0 to 29 , actual scores were between 0 and 23 and the mean for the sample as a whole is 3.76 ($SD = 4.46$).

Three other commonly modeled covariates include *childhood SES*, *gender*, and *racial/ethnic minority*. SES is a standardized composite measure of parents’ occupational status, educational level, and family income. The SES variable has a mean of 0 and a standard deviation of 3.29 . SES scores range from -5.43 and 9.18 . Gender was coded so that male = 1 ($n = 186$) and female = 0 ($n = 170$). Racial/ethnic minority was coded White = 0 ($n = 280$) and other—ethnic minority = 1 ($n = 74$).

Analysis

A series of path models were estimated using Mplus 7 (L. K. Muthén & Muthén, 1998–2012). The effects of physical and emotional abuse were examined in the total sample ($n = 356$), and subsequently, the effects of chronicity of each type of abuse were analyzed only among the subsamples of individuals who experienced either physical ($n = 318$) or emotional ($n = 225$) abuse. The sample was limited to people who are abused to determine whether chronic abuse is associated with more adult crime as compared to nonchronically occurring abuse. These two types of abuse were analyzed separately, although a final model included both types together to examine their unique effects on crime. The Poisson distribution was used to address the nature of the outcome variable—count data. Childhood antisocial behavior was analyzed as a mediator of the relationship between child abuse and the outcome—adult crime in each model. The indirect effects through childhood antisocial

behavior in the path were estimated using the MODEL CONSTRAINT function of the Mplus 7 (B. O. Muthén, 2011).

The sample size-adjusted Bayesian information criterion (BIC) is reported for fit indices. In addition, the adequacy of models were determined by the chi-square difference test based on -2 times log likelihood values in comparing each estimated model with its corresponding nested model where the focal paths were constrained to be zero. Statistical significance of the difference test indicates the fit of an estimated model.

RESULTS

The large majority of the sample experienced at least one form of physical abuse ($n = 318$, 89.3%). A smaller percentage, but still a majority ($n = 225$, 63.3%), experienced at least one form of emotional abuse. Only 6.5% of the sample ($n = 23$) were immune from any abusive disciplining behavior, and 59.2% ($n = 210$) experienced both types of abuse. Among participants who experienced emotional abuse, 36.2% ($n = 128$) were emotionally abused at a single phase (i.e., either during the last 3 months in preschool or during the last year in school age), and 27.1% ($n = 96$) experienced emotional abuse at more than one phases (i.e., in both preschool and school age). Among those who experienced physical abuse, 14.9% ($n = 53$) experienced physical abuse at one time; 33.5% ($n = 119$) at two times; and 40.8% ($n = 145$) at three times.

Table 1 shows bivariate correlations among all the variables. Emotional and physical abuse were correlated, $.17$ at $p < .01$. The presence of emotional abuse was related with chronic occurrence of physical abuse ($r = .30$, $p < .001$) and the presence of physical abuse with chronicity of emotional abuse ($r = .23$, $p < .001$). The four abuse variables were significantly correlated with childhood antisocial behaviors and adult crime, but physical abuse ($r = .10$, $p < .10$) and physical abuse chronicity ($r = .14$, $p < .01$) were correlated less strongly with adult crime. As shown in Table 1, the covariates of childhood SES and child's gender were significantly correlated with all other core variables, including abuse subtypes, childhood antisocial behavior, and adult crime. Official child welfare involvement was not significantly correlated with parent-reported abuse, although emotional abuse approached significance ($r = 0.09$, $p < .10$). Childhood SES was correlated with official child welfare involvement ($r = -.57$, $p < .001$) at a much higher level than with parent-reported abuse.

Findings of a full analysis model show that although physical abuse was not directly related to adult crime, it was indirectly related to the outcome through childhood antisocial behavior (Figure 1). The coefficient (β) for the path between physical abuse and childhood antisocial behavior was 0.17 ($p < .001$) and that for childhood antisocial behavior to adult crime was 0.62 ($p < .001$). The coefficient for this indirect path was 0.21 and statistically significant at $p < .001$.

Among participants who had some exposure to physical child abuse (i.e., a subsample of those who had been physically abused at least once in the preschool and school-age assessment periods), a similar pattern was shown (Figure 1). Here, chronicity of physical abuse was indirectly related to adult crime through childhood antisocial behavior.

Coefficients were $\beta = 0.12$ ($p < .10$) for chronicity of physical abuse on childhood antisocial behavior and $\beta = 0.60$ ($p < .001$) for childhood antisocial behavior to adulthood crime. The coefficient for this indirect path was 0.06 and marginally significant at $p = .059$.

As illustrated in Figure 2, emotional abuse was both directly related to crime ($\beta = 0.27$, $p < .05$) and also indirectly related to this outcome through childhood antisocial behavior, when examined for the full analysis sample. In the model, emotional abuse predicted childhood antisocial behavior ($\beta = 0.16$, $p < .01$), which, in turn, predicted adult crime ($\beta = 0.55$, $p < .001$). The coefficient for this indirect path was 0.11 and statistically significant at $p < .01$. However, as shown in Figure 2, there was no evidence of a chronicity effect among those who had been emotionally abused; that is, neither a significant direct nor indirect effect of chronicity of emotional abuse on later adult crime was shown when analyzed for the subgroup of emotionally abused children.

The final model included both the physical and emotional abuse variables together to test their unique direct and indirect effects on adult crime (Figure 3). In this analysis, both the physical and emotional abuse variables predicted adult crime indirectly through childhood antisocial behavior. That is, physical and emotional abuse predicted childhood antisocial behavior ($\beta = 0.16$ at $p < .01$ and 0.13 at $p < .05$, respectively), which, in turn, predicted later adult crime ($\beta = 0.57$, $p < .001$). Furthermore, emotional abuse predicted adult crime directly as well ($\beta = 0.27$, $p < .01$) after accounting for other variables in the model.

Covariates in the final model produced some interesting effects worthy of mention. For example, male gender was positively related with physical and emotional abuse ($\beta = 0.11$ and 0.12 at $p < .05$, respectively), childhood antisocial behavior ($\beta = 0.22$, $p < .001$), and adult crime ($\beta = 0.47$, $p < .001$). Childhood SES was associated with adult crime indirectly through physical ($\beta = -0.11$, $p < .10$ for the path from SES and physical abuse) and emotional abuse ($\beta = -0.19$, $p < .001$ from SES and emotional abuse). Furthermore, official child welfare reports of abuse and neglect had a direct effect on later adult crime ($\beta = 0.23$, $p < .05$) in the final model.

DISCUSSION

This study examined the direct and indirect effects of physical and emotional abuse exposure and chronicity on adult crime, while accounting for antisocial behavior earlier in life. Childhood antisocial behavior was included as a potential mediator in the analyses because published research suggests that adult criminal behavior is often an extension of earlier forms of antisocial behavior that are located more proximally to child abuse as a developmental risk factor (Klika et al., 2013). Results provide evidence of relatively modest but consistent indirect effects of physical and emotional abuse on later adult crime. Emotional abuse also appears to have a direct effect on adult crime, suggesting that variables other than childhood antisocial behavior (and the covariates included) are needed to explain this association.

Subgroup tests of the chronicity of physical and emotional abuse are also revealing. Findings for physical abuse chronicity suggest that exposure to this form of abuse over time can

increase even further the risk of adult crime among those who were abused. In contrast, there was no evidence of a higher risk of adult crime among those who were chronically emotionally abused. A final analysis showed that both types of abuse carry their own, independent risks for adult crime that is partially or fully explained by the onset of childhood antisocial behavior. Unique effects of physical and emotional abuse found in the final model implicate possible “double whammy” effects (Hughes, Parkinson, & Vargo, 1989). Experience of physical abuse carries an additive effect among people who are emotionally abused as emotional abuse does among people who are physically abused, although future studies are warranted to formally address whether this additive effect is present along with the effect of multiple adverse circumstances in childhood.

These findings are instructive because they provide some evidence that the two types of child abuse relate somewhat differently to later involvement with criminal behavior. And they add to what is known from mostly cross-sectional studies on patterns of antisocial behavior (e.g., Manly et al., 1994; Watts & McNulty, 2013). Of note in this study, the effect of parent-reported child abuse on adult crime was mediated by childhood antisocial behavior, whereas our measure of officially recorded child maltreatment predicted adult crime directly, suggesting that different sources of data on child abuse can relate to outcomes in a somewhat different manner.

Interestingly, the findings of this study stand in some contrast to those of other studies on physical abuse particularly. Whereas findings of this study suggest that physical abuse is not directly related to adult crime once childhood antisocial behavior and demographic variables are considered, other studies provide contrasting findings (Maxfield & Widom, 1996; Widom & Maxfield, 2001). For example, Widom and Maxfield (2001) reported descriptive statistics that those physically abused in childhood had the highest rate of arrests for violent crime (21.1%) to age 40 years when compared to those who had been sexually abused (8.8%) or not abused at all (13.9%). However, they did not account for possible third variables, such as demographic indicators and childhood antisocial behavior. A study by Zingraff and colleagues (1993) found, much like we did in the current longitudinal investigation, that there was no direct association between physical abuse and later antisocial behavior once demographic variables were taken into account.

Our findings generally are consistent with other studies that have examined childhood antisocial behavior as both a consequence of child abuse and predictor of later (adult) criminal behavior (e.g., Klika et al., 2013; Topitzes et al., 2011). Topitzes et al. (2011) showed that child abuse predicted adult crime through earlier aggressive and delinquent behaviors measured in late childhood or early adolescence (Grade 3 to Grade 6). In a previously published study on this same dataset, Klika et al. (2013) showed that the effect of physical child abuse on later criminal behavior in adults was explained by their early onset of antisocial behavior and that it was the early onset of the behavior that predicted later criminal behavior, not so much the abuse itself. This study adds to the literature by including additional control variables (official maltreatment and ethnic/racial minority) and examining the mechanism beyond physical abuse.

Although this study adds to what has been published on the topics of child abuse and antisocial behavior, it is not without limitations. One limitation is that we investigated only two of the known types of child maltreatment that may relate to later crime in adults. In addition, analyses did not include data on neglect, although they did account for child welfare involvement, which was caused by earlier neglect for some. Other limitations include our being unable to fully differentiate in analyses physical and emotional abuse cases given the possible overlap in these forms of abuse (although we did account for their shared influence on adult crime in a final model test) and our studying childhood antisocial behavior as a mediator that overlaps temporally with other variables in the model.

Finally, our chronicity measure of this study does not capture abuse frequencies so does not distinguish a repetition over time of a single incidence of abuse from a repetition of frequent occurrences of abuse. Future studies that account for both frequency and overtime chronicity are warranted because the two are likely to interact.

Nevertheless, the longitudinal design of our study and use of high-quality data to investigate important questions about abuse and antisocial or criminal behavior adds to what is known and can inform other studies in the research literature.

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APPENDIX A

Items Measuring Physical and Emotional Abuse

	Physical Abuse Items	<i>n</i> (%)	Emotional Abuse Items	<i>n</i> (%)
1	Pepper in mouth	78 (21.9)	Take meals away	15 (4.2)
2	Slap face	220 (61.8)	Threaten to leave	117 (32.9)
3	Shake	155 (43.5)	Embarrass	119 (33.4)
4	Pull hair	172 (48.3)	Threaten to send away	125 (35.1)
5	Hit with stick	213 (59.8)	Isolate in dark room	4 (1.1)
6	Hit with strap	164 (46.1)	Ridicule	120 (33.7)
7	Bite	93 (26.1)	Lock out of house	8 (2.2)
8	Bite to bruise	14 (3.9)		
9	Slap to bruise	89 (25.0)		
10	Hit to bruise	63 (17.7)		
11	Burn	21 (5.9)		
12	Burn to leave mark	10 (2.8)		

APPENDIX B

Items Measuring Adult Crime

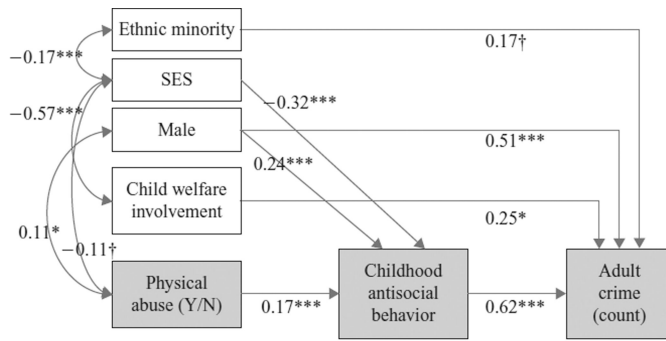
Survey Item	Offense Category
1 Ever purposely damaged/destroyed property of your parents or other family members?	Property
2 Ever purposely damaged/destroyed property of your employer?	Property
3 Ever purposely damaged/destroyed property that did not belong to you, not counting family or work property?	Property
4 Ever purposely set fire or tried to do so?	Property
5 Ever broken or tried to break into a building or vehicle to steal something or just to look around?	Property
6 Ever stolen or tried to steal things worth more than \$50?	Property
7 Ever taken a vehicle for a ride or driven without the owner's permission?	Property
8 Ever stolen or tried to steal a motor vehicle?	Property
9 Ever used checks illegally or used phony money to pay for something?	Property
10 Ever knowingly bought, sold, or held stolen goods?	Property
11 Ever stolen money or other things from your parents or other family members?	Property
12 Ever stolen money, goods, or property from the place where you work?	Property
13 Ever used or tried to use credit cards without owner's permission?	Property
14 Ever snatched someone's purse or wallet or picked someone's pocket?	Property
15 Ever embezzled money?	Property
16 Ever used force or strong-arm methods to get money or things from people?	Property
17 Ever tried to cheat someone by selling them something that was worthless?	Property
18 Ever had or tried to have sexual relations with someone against their will?	Person
19 Ever been involved in a gang fight?	Person
20 Ever hit or threatened to hit parent(s)?	Person
21 Ever hit or threatened to hit your supervisor or other employee?	Person
22 Ever threatened to hit anyone?	Person
23 Ever hit anyone?	Person
24 When you hit this person, did you have the idea of seriously hurting or killing this person?	Person
25 Ever been paid for having sexual relations with someone?	Society
26 Ever paid someone for having sexual relations with you?	Society
27 Ever carried a hidden weapon?	Society
28 Ever sold marijuana or hashish?	Society
29 Ever sold hard drugs?	Society

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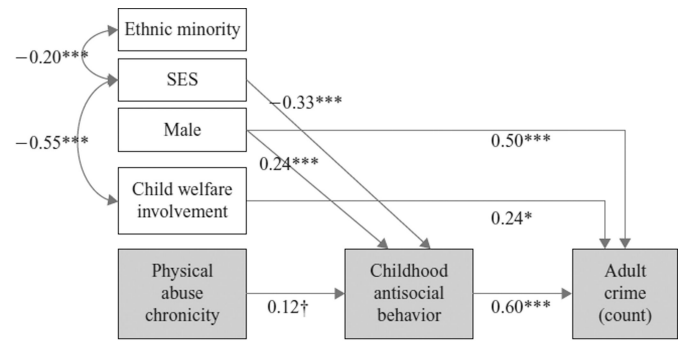
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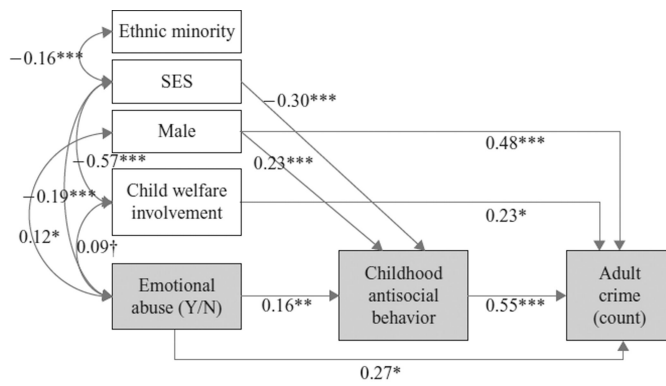


N = 356;
 Estimator = MLR;
 Test of model fit: $-2*(\log\text{-likelihood difference}) = 52.11 (3)$ at $p < .001$
 Sample size-adjusted BIC = 5,641.80

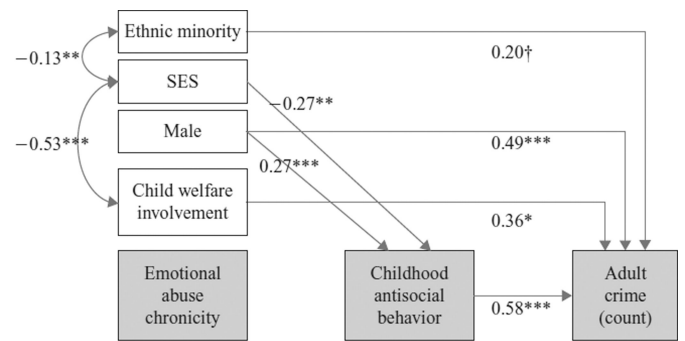


N = 318 (Subsample of people who are physically mistreated);
 Estimator = MLR;
 Test of model fit: $-2*(\log\text{-likelihood difference}) = 48.81 (3)$ at $p < .001$
 Sample size-adjusted BIC = 5,628.71

Figure 1.
 Effects of physical abuse (left) and its chronicity (right) during childhood on adult crime (standardized).
 SES = socioeconomic status; MLR = maximum likelihood estimation with robust standard errors; BIC = Bayesian information criterion.
 † $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

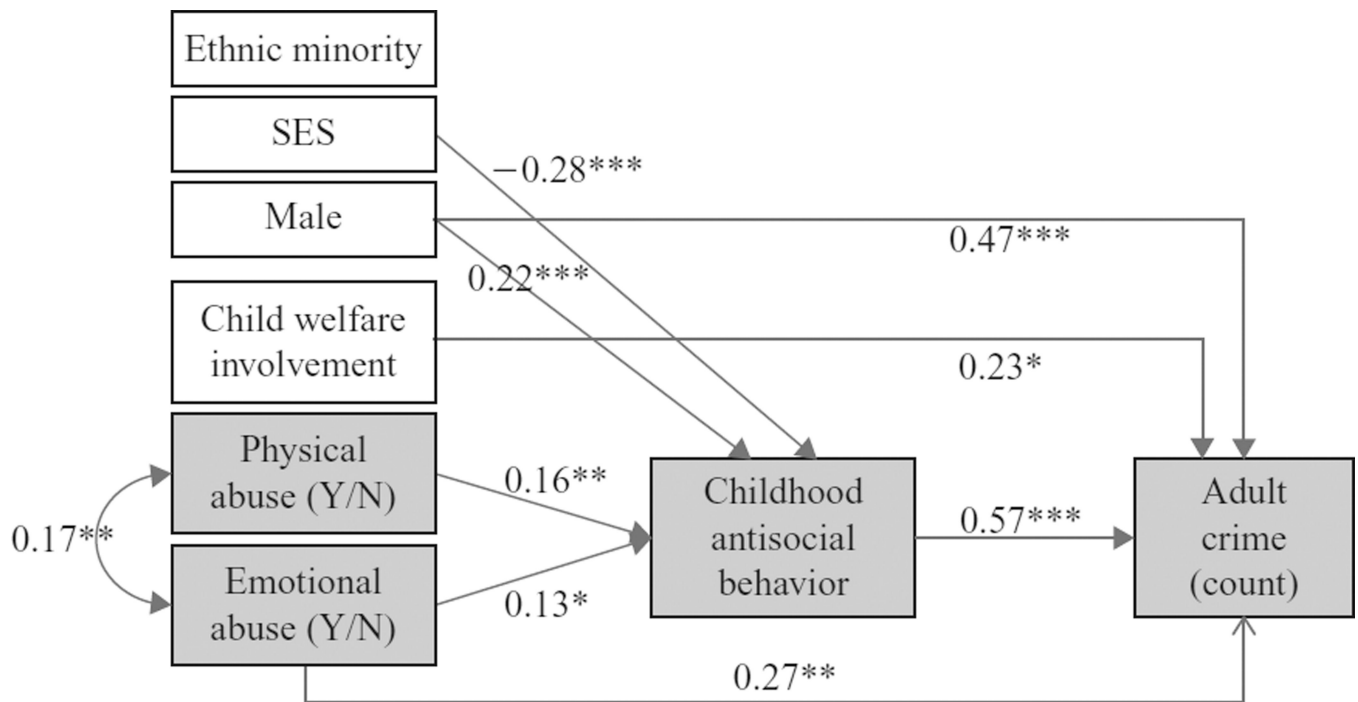


$N = 356$;
 Estimator = MLR;
 Test of model fit: $-2*(\log\text{-likelihood difference}) = 63.98 (3)$ at $p < .001$
 Sample size-adjusted BIC = 5,920.91



$N = 225$ (Subsample of people who are emotionally mistreated);
 Estimator = MLR;
 Test of model fit: $-2*(\log\text{-likelihood difference}) = 30.14 (3)$ at $p < .001$
 Sample size-adjusted BIC = 3,929.23

Figure 2. Effects of emotional abuse (left) and its chronicity (right) during childhood on adult crime (standardized).
 SES = socioeconomic status; MLR = maximum likelihood estimation with robust standard errors; BIC = Bayesian information criterion.
 $\dagger p < .10$. $*p < .05$. $**p < .01$. $***p < .001$.



$N = 356;$

Estimator = MLR;

Test of model fit: $-2*(\log\text{-likelihood difference}) = 71.26 (5)$ at $p < .001$

Sample size-adjusted BIC = 5,920.91

Figure 3.

Unique effects of physical and emotional child abuse on adult crime (standardized). The correlations between covariates and predictors (physical and emotional abuse) are not presented for legibility of the figure. The correlations are consistent with those in models of abuse presence and available upon request. SES = socioeconomic status; MLR = maximum likelihood estimation with robust standard errors; BIC = Bayesian information criterion. $*p < .05$. $**p < .01$. $***p < .001$.

TABLE 1

Pearson Correlations Among the Study Variables

	1	2	3	4	5	6	7	8	9	10
1 Emotional abuse (EA)	1									
2 Physical abuse (PA)	.17**	1								
3 EA chronicity	.87***	.23***	1							
4 PA chronicity	.30***	.71***	.39***	1						
5 Childhood antisocial behavior ^a	.29***	.16**	.30***	.24***	1					
6 Adult antisocial behavior ^a	.24***	.10†	.26***	.14**	.31***	1				
7 Male	.12*	.11*	.13*	.12*	.23***	.35***	1			
8 Childhood SES	-.20***	-.12*	-.20***	-.11*	-.28***	-.22***	-.01	1		
9 Child welfare involvement	-.09†	.04	.07	.01	.13*	.18**	.04	-.57***	1	
10 Ethnic minority	.07	.02	.09†	.10†	.08	.11*	-.08	-.19***	.02	1

Note. SES 5 socioeconomic status.

^aLog-transformed variables.

† $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.