Childhood maltreatment and conduct disorder: Independent predictors of criminal outcomes in ADHD youth

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Abstract

Objective—Children with attention-deficit/hyperactivity disorder (ADHD) are at heightened risk for maltreatment in childhood and criminality as they enter into adolescence and early adulthood. Here, we investigated the effect of moderate to severe childhood maltreatment on later criminality among adolescents/young adults diagnosed with ADHD in childhood while accounting for the contributions of other known risk factors such as early conduct disorder (CD).

Methods—Eighty-eight participants from a longitudinal study of children diagnosed with ADHD and screened for comorbid disorders at age 7–11 years were assessed for maltreatment histories at the time of the 10-year adolescent follow-up. Detailed juvenile and adult criminal records were obtained from the New York State Division of Criminal Justice Services approximately 3- years after commencement of the follow-up study. We used regression analyses to determine predictors of adolescent/young adult criminal behavior.

Results—Moderate to severe childhood maltreatment increased the risk of adolescent/young adult arrest over and above the risk associated with childhood CD, while both childhood maltreatment and childhood CD significantly increased the risk of recidivism. ADHD youth classified as maltreated were three and a half times more likely to be arrested when compared to ADHD youth without a maltreatment classification.

Conclusion—We established maltreatment as a risk factor for criminality in ADHD youth and demonstrated that this relationship was independent of the contributions of CD, and established risk factor for antisocial behavior in this population. The findings highlight the need for maltreatment screening in children with ADHD in order to identify those at heightened risk for criminal activity, and target treatment to improve outcome in this high-risk group of children.

Introduction

Longitudinal studies of youth with attention deficit/hyperactivity disorder (ADHD) have consistently reported higher rates of antisocial behavior during adolescence and early adulthood when compared to their typically-developing peers (Barkley, Fischer, Smallish, & Fletcher, 2004; Mannuzza, Klein, Konig, & Giampino, 1989; Satterfield & Schell, 1997;

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Hechtman, Weiss, & Perlman, 1984). The relationship between childhood ADHD and later criminality is clearly illustrated by arrest rates between 39–57% in ADHD youth (Mannuzza et al., 1989; Babinski, Hartsough, & Lambert, 1999; Satterfield & Schell, 1997; Barkley et al., 2004). Further, some studies have suggested that up to 70% of juvenile offenders meet criteria for ADHD (Shelton & Pearson, 2005; Abram, Teplin, McClelland, & Dulcan, 2003; Ulzen & Hamilton, 1998; Vreugdenhil, Doreleijers, Vermeiren, Wouters, & van den, 2004), representing up to a seven-fold increase when compared to rates of ADHD in the general population (Scahill & Schwab-Stone, 2000).

ADHD, comorbidity, and criminal outcome

ADHD is a heterogeneous disorder which often presents with significant co-morbidity, making it difficult to discern if risk for negative outcome is attributable to ADHD alone or other coPage 4 of 30 occurring factors. While ADHD is believed to predispose individuals to later antisocial behavior, data suggest that other factors, such as early aggression (Fergusson, Lynskey, & Horwood, 1996; MacDonald & Achenbach, 1999), impulsivity (Lahey, Loeber, Burke, & Applegate, 2005; Satterfield & Schell, 1997), and/or early conduct disorder (CD) (Babinski et al., 1999) may play important roles. For example, prospective studies in community samples have found that childhood conduct problems predict adult antisocial behavior, while childhood ADHD alone does not (Farrington, 1989; Farrington & Loeber, 2000; Stattin & Magnusson, 1989). Similarly, in a comprehensive review of childhood ADHD studies examining antisocial activity, Lilienfeld and Waldman (1990) reported that ADHD, in the absence of aggression or conduct problems, was not related to later antisocial behavior (Lilienfeld & Waldman, 1990). More recently, a study examining childhood ADHD and delinquency among four diagnostic groups (ADHD alone, ADHD + CD, ADHD + ODD, and control) reported that ADHD + CD conferred the highest risk for later delinquency, while ADHD alone and ADHD + ODD showed increased risk relative to the control group (Sibley, Pelham, Molina, Gnagy, Waschbusch, Biswas, et al., 2011). Others studies have also suggested that ADHD in childhood predicts later antisocial behavior above and beyond that accounted for by early aggression or other factors (Lambert & Hartsough, 1998; Mannuzza et al., 1989). To summarize, several risk factors have been associated with later antisocial behavior in youth with ADHD, however, none of the studies have investigated the effect of maltreatment on criminal outcome in ADHD youth. This is particuely suprising, if one considers the established link between childhood maltreatment and criminalty found in population-based studies.

Childhood maltreatment and criminal outcomes

Several major population-based prospective studies carried out in the United States have shown that childhood maltreatment significantly increases the risk of antisocial behavior in adolescence and adulthood (Maxfield & Widom, 1996; Widom, 1989a; Zingraff, Leiter, Myers, & Johnsen, 1993; Ireland, Smith, & Thornberry, 2002; Widom, 1989b; Cicchetti & Manly, 2001; Lansford, Dodge, Pettit, Bates, Crozier, & Kaplow, 2002). For example, in the Rochester Youth Development Study, adolescents with a history of abuse or neglect were significantly more likely to have an arrest record when compared to non-abused controls (Smith & Thornberry, 1995). Similarly, a longitudinal study of Midwestern youth found that childhood maltreatment increased the overall risk of juvenile arrest by 55% and arrests for violent crime by 96% (Maxfield & Widom, 1996).

Although childhood maltreatment has been identified as a potent predictor of later criminality in several population based studies, this risk factor has not been systematically examined in individuals with ADHD. As stated earlier, while several major longitudinal studies of ADHD youth have investigated the contributory role of early conduct problems to later antisocial and/or criminal outcomes, *none* have examined the contributory role of

childhood maltreatment. Given that consistent links have been established between childhood maltreatment and subsequent criminality in population-based studies (Widom, 1989a; Smith & Thornberry, 1995; Zingraff et al., 1993; Ireland et al., 2002) and between an increased risk of childhood maltreatment and disruptive behavior disorders such as ADHD (Briscoe-Smith & Hinshaw, 2006; Cicchetti & Manly, 2001; Ford, Racusin, Ellis, Daviss, Reiser, Fleischer, et al., 2000), we addressed the issue of maltreatment in ADHD youth and the effect on criminal outcome later in life.

Further, while several longitudinal studies of youth with ADHD attest to the adverse outcomes experienced by these youth as they enter into adolescence and early adulthood (Barkley, Fischer, Smallish, & Fletcher, 2006; Hechtman & Weiss, 1986; Mannuzza, Klein, Bessler, Malloy, & LaPadula, 1998; Weiss, Hechtman, Milroy, & Perlman, 1985), relatively few studies examined children rigorously diagnosed at baseline using current classification systems and diagnostic instruments (Fischer, Barkley, Edelbrock, & Smallish, 1990; Hechtman, Weiss, Perlman, Hopkins, & Wener, 1979; Mannuzza et al., 1998), or systematically assess comorbidity at baseline (Hechtman et al., 1979; Mannuzza et al., 1998; Barkley et al., 1990). Further, the majority of subjects in these studies were homogeneous in terms of ethnicity (mostly Caucasian) and socioeconomic profiles (mostly middle class) (Mannuzza et al., 1998; Barkley et al., 1990; Biederman, Monuteaux, Mick, Spencer, Wilens, Silva et al., 2006), further limiting generalizability. Finally, none of the extant longitudinal studies of ADHD assessed for the presence of childhood maltreatment or for the contributions of maltreatment history on outcome. The current sample is ethnoculturally and socioeconomically diverse, and includes a majority of participants from low or low-middle SES backgrounds, representing a group more likely to be subject to a variety of adversities. All subjects were assessed for childhood maltreatment.

The present study sought to examine the relationship between childhood maltreatment and later criminality in an ethnically diverse sample of urban youth with a childhood diagnosis of ADHD. Further, as CD has been identified as a potent risk factor to criminal outcomes in ADHD groups (Gittelman, Mannuzza, Shenker, & Bonagura, 1985; Fischer, Barkley, Smallish, & Fletcher, 2002; Barkley et al., 2004; Hechtman & Weiss, 1986), we investigated whether maltreatment would add risk above and beyond the contributions of CD. We hypothesized that childhood maltreatment would be linked to an increase in later criminality, and that maltreatment would independently contribute risk over and above the contributions of childhood CD.

Method

Participants

Our sample consisted of 88 adolescents/young adults (11 females) who were part of a longitudinal study of ADHD. The original cohort was from a large NIMH-funded study of ADHD youth (Schulz, Newcorn, Mckay, Himelstein, Koda, Siever, et al., 2001; Halperin, Sharma, Siever, Schwartz, Matier, Wornell, et al., 1994) consisting of 169 children (88% male) recruited between 1990–1997 when they were 7–11 years of age (mean = 8.99, SD = 1.3). Individuals were referred for behavioral difficulties by schools and mental health providers. The sample was rated as having significant behavioral problems by both parents and teachers, and all participants were diagnosed with ADHD. These children comprised a highly diverse and mobile inner-city population who were not originally recruited for a longitudinal study, and were difficult to locate for follow-up. 122 families (72.2%) were located from the original cohort. Among those located, 98 (80.3%) completed the re-evaluation. The group lost to follow-up did not differ significantly from those followed with regard to age at child evaluation, ratings of behavior, or rates of ODD, CD, mood or anxiety disorders. The present sample included individuals who participated in the 10-year follow-

up when they were between 16–21 years of age (mean = 18.4 years, SD=1.7), and provided retrospective information regarding childhood maltreatment history. Official criminal data was obtained approximately 3 years after commencement of the adolescent follow-up when participants ranged in age between 18 and 26 years (mean = 21.6 years; SD=2.2). Our sample was ethnically diverse, comprised of 31.9% Latino, 27.2% Caucasian, 22.7% African American, and 18.2% of mixed or other ethnicity. Participants were generally of lower to lower-middle socioeconomic status (mean = 36.5, SD = 17.8, range: 11–85, Nakao & Treas, 1994) and almost exclusively urban. Individuals with a diagnosis of schizophrenia, pervasive developmental disorder, Tourette's syndrome, a Full Scale IQ below 70, and those who were non-English speaking were excluded from entry into the initial childhood study. Characteristics of the childhood sample are summarized in Table 1.

This study was approved by the Institutional Review Boards of the Mount Sinai School of Medicine and Queens College, City University of New York. Participants over the age of 18 signed their own statement of informed consent for participation in the study. When participants were under the age of 18, parents signed written statements of informed consent for their own and their child's participation. Assent was obtained from all participants younger than 18 years. Participants were compensated for their time and travel expenses.

Childhood evaluation

Diagnostic classification—The childhood diagnosis of ADHD was based on information obtained from parents and teachers. Only children with teacher ratings on the IOWA Conners Inattention/Overactivity scale above the clinical cutoff (Pelham, Milich, Murphy, & Murphy, 1989) were entered into the study. Parents were interviewed using either the DISC version 2.1 (Shaffer, Fisher, Piacentini, Schwab-Stone, & Wicks, 1989), which uses DSM-III-R criteria (American Psychiatric Association, 1987) or the DISC version 2.3 (Shaffer, Fisher, Dulcan, Davies, Piacentini, Schwab-Stone, et al., 1996), which reflects DSM-IV criteria (American Psychiatric Association, 1994), depending on their date of entry. Parents also provided ratings of psychopathology on the Child Behavior Checklist (CBCL, Achenbach, 1991). The DISC, behavioral checklists, and ancillary data provided by the parents (e.g., prior diagnostic reports, school records, etc.) were used in conjunction with clinical judgment to determine ADHD and comorbid diagnoses. Those classified using DSM-III-R and DSM-IV criteria did not differ from each other on any parent or teacher ratings. Children were assessed cognitively using the WISCR or the WISC-III (Wechsler, 1974; Wechsler, 1991), depending on the time of entry into the study.

Follow-up evaluation

Assessment of childhood maltreatment—Childhood maltreatment was assessed using the short form of the Childhood Trauma Questionnaire (CTQ-SF, Bernstein, Fink, Handelsman, Foote, Lovejoy, Wenzel, et al., 1994; Bernstein, Stein, Newcomb, Walker, Pogge, Ahluvalia, et al., 2003), a 28-item self-report measure that screens adults and adolescents for histories of childhood abuse and neglect. The CTQ-SF is a brief, reliable and valid means of retrospectively assessing childhood maltreatment with test-retest reliability coefficients ranging from .79 to .86, and internal consistency coefficients ranging from .66 to .92 across samples (Bernstein, Ahluvalia, Pogge, & Handelsman, 1997; Bernstein et al., 2003). Within our sample, the Cronbach's Alpha for the CTQ was .68. Subjects rated statements about childhood trauma on a 5-point Likert scale as 'never true', 'rarely true', 'sometimes true', 'often true', and 'very often true'. A minimization and denial of abuse and neglect scale is incorporated into the questionnaire to detect false-negative trauma reports. The CTQ-SF assesses 5 types of maltreatment; Emotional Abuse, Physical Abuse, Sexual Abuse, Emotional Neglect, and Physical Neglect, and provides cutoff scores from none to low, low to moderate, moderate to severe, and severe to extreme exposure for each

maltreatment subtype. Good specificity and sensitivity of cutoff scores to classify maltreated subjects have been reported (Bernstein et al., 2003; Bernstein, Stein, & Handelsman, 1998). For the purposes of this study, a dichotomous variable of maltreated/not-maltreated was created where individuals were categorized as maltreated if they met criteria for moderate to severe levels of one or more sub-types of maltreatment using the cut scores provided in the CTQ manual.

Assessment of socioeconomic status—Socioeconomic status was assessed using a measure of socioeconomic prestige developed at the National Opinion Research Center (Nakao & Treas, 1994). This measure approaches the issue of measuring socioeconomic status by ranking the relative prestige of an individual's occupation on a scale from 1 to 100. Information used to determine the socio-economic prestige score was obtained from the parents during the baseline assessment.

Criminal data—Detailed juvenile and adult criminal records for the sample were obtained from the New York State Division of Criminal Justice Services, Albany, New York, which houses the official data for all offenses committed in New York State. A detailed description of our prospective follow-up study (including methods, sample characteristics, goals, and significance) was submitted to the Division of Criminal Justice Services for review. On approval, a nondisclosure agreement was signed by the principal investigator (J.M.H). This agreement stipulated that all arrest history data would not be disclosed in a manner that could identify an individual, would be used only for research purposes, and would be treated as strictly confidential (e.g., the data would be coded, secured in locked cabinets, not copied or circulated). Arrest record, age of first arrest, and rates of recidivism were used as proxies of young adult criminality in the current investigation.

Statistical procedures

To examine possible risk factors for criminality, we separated the sample by arrest record (arrested/never arrested). Chi-square analyses were used to determine group differences on dichotomously assessed variables such as ODD, CD, anxiety disorder, mood disorder, and childhood maltreatment, and Student's t-tests were used to determine differences between groups on continuous variables such as age at the time the criminal database was compiled and CBCL internalizing and externalizing scores.

To determine if childhood maltreatment contributed risk to later criminality over and above the contributions of childhood CD, we first used binary logistic forward (Wald) regressions to estimate the relative risk of maltreatment and CD on young adult arrest. Childhood SES and age at the time of criminal database compilation were entered into the first step of the regression analysis as control variables. Dichotomous variables for CD and maltreatment were entered on the second step and served as independent predictor variables. A dichotomously coded arrest variable (ever/never arrested) served as the dependent measure for the logistic regression. Next, linear regression analyses were used to determine if childhood maltreatment and childhood CD added unique risk to 1) age of first arrest and/or 2) rates of recidivism. As with the logistic regression analysis, childhood SES and age at the time of criminal database compilation were entered into the first step of the analyses as control variables. Dichotomous variables for childhood CD and childhood maltreatment were entered as predictor variables on the second step. Continuous variables for age of first arrest and rates of recidivism were used as dependent measures in the linear regression analyses.

Results

Among the 88 participants, 6 individuals were detected as underreporting on the minimization and denial scales of the CTQ and excluded from further analyses. Of the remaining 82 participants (9 females), 33 (40.2%) had been arrested. The average age of first arrest was 17.7 years (SD = 1.8, range 14.2–21.1 years), and the average number of arrests was 1.5 (SD = 2.8, range 0–16 arrests). Twenty-nine participants (35.4%) met criteria for moderate to severe maltreatment. Rates of childhood maltreatment were significantly higher in young adults who had been arrested than those without an arrest history (54.5% vs. 22.4%; chi-square = 8.9, $p = .003$).

At baseline, 27 (32.9%) of the children were diagnosed with CD. Rates of childhood CD were significantly higher in young adults who had been arrested than those without an arrest history (51.5% vs. 20.4%; chi-square = 8.6, $p = .003$). The group that had been arrested did not differ significantly from the group without an arrest history in terms of socioeconomic background, CBCL externalizing or internalizing scores, or rates of ODD, mood or anxiety disorders. Group comparisons are summarized in Table 2.

As expected, low SES, childhood CD, and maltreatment were not unrelated to each other. Childhood CD was significantly associated with lower SES (r-value = −.25, $p = .02$) and childhood maltreatment (r-value = .23, $p = .04$). No association between SES and childhood maltreatment was found. To address the issue of correlating predictor variables when assessing the respective influence on outcome, we used a statistically conservative stepwise approach, which adjusts for correlations in the regression model.

Do maltreatment and conduct disorder independently predict criminal outcome?

Results from the logistic regression analysis revealed childhood maltreatment as an independent risk factor for young adult arrest after accounting for the contributions of childhood CD, SES, and age at time of CDB collection (Wald = 5.73, $p = .02$, see Table 3). Childhood CD was not independently associated with arrest above and beyond the variance accounted for by maltreatment. ADHD youth classified as maltreated were three and a half times more likely to be arrested than the ADHD youth who were not classified as maltreated.

Results from the linear regression analyses revealed that moderate to severe childhood maltreatment ($\beta = .20$, $p = .05$) and childhood CD ($\beta = .29$, $p = .01$) were significantly related to recidivism (see Table 4), but not age of first arrest (childhood maltreatment $\beta = .11$, $p = .61$; childhood CD $\beta = .04$, $p = .87$).

Discussion

Overall, this study was designed to establish maltreatment as a pathway to adolescent/young adult criminality in children with ADHD. While data have consistently shown that comorbid CD accounts for a substantial proportion of the variance associated with later criminality in the ADHD population, findings have been mixed as to whether ADHD alone poses increase risk for this outcome. Our findings indicate that a third, independent factor, childhood maltreatment, must be considered. This finding is not surprising given the fact that maltreatment has been linked to young adult antisocial behavior in the general populations. However, maltreatment and its negative effect on outcome has been largely overlooked in ADHD investigations, despite the fact that these children are at increased risk for maltreatment (Briscoe-Smith & Hinshaw, 2006; Cicchetti & Manly, 2001; Ford et al., 2000).

As hypothesized, our results identified childhood maltreatment as an independent predictor of later criminality, over and above the variance accounted for by CD. Strikingly, after controlling for childhood SES and age at time of criminal data collection, maltreatment emerged as a stronger predictor than childhood CD for young adult arrest. Individuals classified as moderate to severely maltreated carried three and a half times greater risk for later arrest. Further, maltreatment and CD were related to rates of recidivism, but not age of first arrest, suggesting that both of these factors are related to the frequency and persistence of criminal behavior, independent from the age criminal behavior was initiated. Overall, our findings are consistent with the extant child abuse literature demonstrating that children with histories of maltreatment have elevated rates of criminality in adolescence and young adulthood (Ireland et al., 2002; Smith & Thornberry, 1995; Widom, 1989c; Widom & Maxfield, 1996; Zingraff et al., 1993). We now extend those findings to adolescents and young adults with a childhood diagnosis of ADHD and highlight the differences in criminal outcomes between ADHD youth with and without a history of moderate to severe maltreatment. Given the high rates of maltreatment reported in ADHD youth, this is a particularly important finding.

The main objective of this study was to document the rates of maltreatment in a longitudinal study of ADHD youth and establish maltreatment as a risk factor for later criminality in this population. Maltreatment has been largely overlooked in ADHD research, both in terms of its frequency in the population and its role in risk for poor outcome. That said, our finding identifying maltreatment as robust risk factor should be interpreted in the context of several limitations. First, identification of childhood maltreatment was based solely on retrospective reports from each participant. Although several studies support the reliability and validity of the CTQ (Bernstein et al., 1997; Bernstein et al., 2003; Fink, Bernstein, Handelsman, Foote, & Lovejoy, 1995; Scher, Stein, Asmundson, McCreary, & Forde, 2001), self-report measures are susceptible to a variety of biases including social desirability, mood at time of report, and memory limitations. Further, as childhood maltreatment was assessed during the adolescent follow-up, at which time some participants had already been arrested, we are unable to say with certainty that the age of first arrest occurred after the onset of maltreatment for all participants. Secondly, the size of our sample may have limited power, decreasing our ability to detect other main effects in our primary analysis independent of maltreatment; in particular, the risk for arrest associated with childhood CD. Criminality is a complex construct, and there are likely a number of factors, in addition to child onset conduct disorder and maltreatment, such as parenting style, parental psychopathology, and comorbid child psychopathology, that likely contribute to antisocial outcomes. It is also possible that the relationship between ADHD and criminality is mediated or moderated by variables such as childhood maltreatment. While such models are important to explore, they were beyond the scope of this paper. Future studies using mediation analysis are clearly warranted. Finally, as in many studies of ADHD, the low rate of female participants in our sample limits the generalizability of these results as it relates to girls diagnosed with ADHD in childhood.

Implications for research, policy, and practice

While the eradication of criminal behavior is unlikely, understanding more about the risk factors that predispose individuals to this outcome is the first step in recognizing those youth most at risk, and facilitating appropriate and early interventions. Interventions in the home environment, such as parent training, anger management, or stress reduction techniques, may help to obviate some of the inherent risks for poor, urban youth struggling with psychiatric illness and psychosocial stressors. The findings from this study have specific implications with regard to antisocial outcomes in ADHD youth, particularly those from lower SES backgrounds, and stress the importance of assessing childhood maltreatment in

this population. Clinicians providing services to individuals with ADHD should be aware of the implications of co-occurring maltreatment and the risks associated therein. Accordingly, the assessment and diagnostic process of ADHD referrals should include screening for possible childhood maltreatment, as this would help to identify ADHD youth with enhanced vulnerability for later antisocial behavior. This study is the first to document the association between childhood maltreatment and criminality in ADHD youth, and highlights the need for future study in this important area.

Acknowledgments

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Table 1

Characteristics of the Childhood Sample

	Total (*N = 82*)
CBCL Externalizing (T-score)	69.6 (11.5) [*]
CBCL Internalizing (T-score)	65.3 (12.1) [*]
Oppositional Defiant Disorder	47.6 %
Conduct Disorder	32.9 %
Anxiety Disorder	30.5 %
Mood Disorder	9.8 %
Moderate to Severe Childhood Maltreatment [**]	35.5 %

Note.

[*] Mean *(SD)*,

[**] assessed at follow-up.

Table 2

Group Differences on Various Risk Factors

Variable	Never arrested (n=49)	Arrested (n=33)	χ^2/t	P
Age[c]	**20.8 (2.1)** [*]	**22.5 (1.9)** [*]	**−3.72**	**<.001**
SES[a]	38.3 (17.0) [*]	34.2 (19.3) [*]	1.00	.32
CBCL Externalizing[a]	69.1 (11.9) [*]	70.3 (11.1) [*]	−.47	.64
CBCL Internalizing[a]	66.0 (11.8) [*]	64.2 (12.6) [*]	.61	.54
Oppositional Defiant Disorder[a]	53.1 %	39.4 %	1.48	.22
Conduct Disorder[a]	**20.4 %**	**51.5 %**	**8.64**	**.003**
Anxiety disorder[a]	34.7 %	24.2 %	1.02	.31
Mood disorder[a]	6.1 %	15.2 %	1.83	.18
Moderate to Severe Maltreatment	**22.4 %**	**54.5 %**	**8.89**	**.003**

Note.

[*] Mean *(SD)*,

[a] assessed at baseline,

[b] assessed at follow-up,

[c] at time of criminal data collection. Significant variables are in boldface type.

Table 3

Logistic Regression Analyses Examining Childhood Maltreatment and Conduct Disorder as Predictors of Young Adult Arrest

Step/variable	β (SE)	Wald	OR (95%CI)	P
I. **Childhood SES**	**−.03 (.02)**	**3.97**	**.97 (.94–1.0)**	**.05**
Age at CDB	**.48 (.15)**	**10.72**	**1.6 (1.22–2.17)**	**.001**
II. **Childhood Maltreatment**	**1.29 (.54)**	**5.73**	**3.6 (1.26–10.40)**	**.02**
Conduct Disorder	.98 (.58)	2.92	2.7 (.87–8.28)	.09

Note. I = step 1; II = step 2. Significant variables are in boldface type.

Table 4

Linear Regression Analyses Examining Childhood Maltreatment and Conduct Disorder as Predictors of Rates of Recidivism

Step/variable	b	SE b	B
I. Childhood SES (Control Variable)	−.02	.02	−.15
Age at CDB (Control Variable)	..26	.13	.20
II. **Childhood Maltreatment**	**1.18**	**.60**	**.20** [*]
Conduct Disorder	**1.70**	**.63**	**.29** [**]

Note. I = step 1; II = step 2. R^2 = .26. Significant variables are in boldface type.

[*] $p < .05$,

[**] $< .01$