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; Hechtman, Weiss, & Perlman, 1984; Mannuzza, Klein, Konig, & Giampino, 1989; Satterfield & Schell, 1997). The relationship between childhood ADHD and later criminality is clearly illustrated by...
arrest rates between 39% and 57% in ADHD youth (Babinski, Hartsough, & Lambert, 1999; Barkley et al., 2004; Mannuzza et al., 1989; Satterfield & Schell, 1997). Further, some studies have suggested that up to 70% of juvenile offenders meet criteria for ADHD (Abram, Teplin, McClelland, & Dulcan, 2003; Shelton & Pearson, 2005; 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 (Schaill & Schwab-Stone, 2000).

ADHD, comorbidity, and criminal outcome

ADHD is a heterogeneous disorder which often presents with significant comorbidity, making it difficult to discern if risk for negative outcome is attributable to ADHD alone or other co-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, Loeb, 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 & Loeb, 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 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 particularly surprising, if one considers the established link between childhood maltreatment and criminality 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 (Cicchetti & Manly, 2001; Ireland, Smith, & Thornberry, 2002; Lansford et al., 2002; Maxfield & Widom, 1996; Widom, 1989a, 1989b; Zingraff, Leiter, Myers, & Johnsen, 1993). 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 (Ireland et al., 2002; Smith & Thornberry, 1995; Widom, 1989a; Zingraff et al., 1993) and between an increased risk of childhood maltreatment and disruptive behavior disorders such as ADHD (Briscoe-Smith & Hinshaw, 2006; Cicchetti & Manly, 2001; Ford 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), 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 (Barkley, Fischer, Edelbrock, & Smallish, 1990; Hechtman et al., 1979; Mannuzza et al., 1998). Further, the majority of subjects in these studies were homogeneous in terms of ethnicity (mostly Caucasian) and socioeconomic profiles (mostly middle class) (Barkley et al., 1990; Biederman et al., 2006; Mannuzza et al., 1998), 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 ethnically 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 (Barkley et al., 2004; Fischer, Barkley, Smallish, & Fletcher, 2002; Gittelman, Mannuzza, Shenker, & Bonagura, 1985; 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
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