Adolescents with Childhood ADHD and Comorbid Disruptive Behavior Disorders: Aggression, Anger, and Hostility

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Abstract This study examined the self-reported expression of overt aggressive behaviors and covert emotional and cognitive processes in adolescents diagnosed with ADHD and comorbid disruptive behavior disorders (DBDs) during childhood. Methods: Participants were a clinically referred sample of 85 individuals diagnosed with ADHD, initially recruited in the early to mid 1990s when they were 7–11 years of age. At that time, 44 (52%) met criteria for a comorbid diagnosis of ODD and an additional 22 (26%) met criteria for a comorbid diagnosis of CD. Approximately 10 years later, these youth, along with an age-matched comparison sample (n = 83), were re-evaluated to assess a wide array of outcomes including physical and verbal aggression, anger, and hostility. Results: Individuals diagnosed with ADHD + CD in childhood reported elevated levels of physical aggression when compared to Controls and the ADHD-only group. Individuals diagnosed with ADHD + ODD had elevated levels of verbal aggression compared to Controls. Additionally, both comorbid groups experienced significantly greater amounts of anger, but not hostility, as compared to Controls. Importantly, the persistence of ADHD symptoms into adolescence accounted for most group differences in verbal aggression and anger at follow-up, but not physical aggression, which was accounted for by childhood CD. Conclusion: Adolescents diagnosed with ADHD and comorbid disruptive behavior disorders during childhood report high levels of aggression associated with increased emotionality in the form of anger, but not hostile cognitions. These findings suggest that in
addition to inattention and hyperactivity/impulsivity, emotional dysregulation may be an important component of ADHD, particularly as it presents in adolescence.

**Key words** ADHD · Aggression · Anger · Hostility · Longitudinal research

**Introduction**

Attention-Deficit/Hyperactivity Disorder (ADHD) is among the most commonly occurring childhood psychiatric disorders, estimated to affect 3–7% of school-age children [1]. ADHD is predictive of a wide array of poor outcomes, including later impairment in educational [2], cognitive [3], and social [4, 5] development. Further, ADHD symptoms persist in a substantial proportion of those diagnosed during childhood [6, 7]. Childhood ADHD has also been associated with later antisocial behaviors [7] including adolescent and young adult criminality [8, 9], oppositional-defiant behaviors [10], and Antisocial Personality Disorder [11].

While it is clear that many children with ADHD experience significant difficulties as they develop into adolescence, the specificity of the association between childhood ADHD and adolescent aggressive behavior remains unclear, in part due to the high rates of comorbid conditions commonly seen in these children, which may account for many poor outcomes. Chief among these comorbid diagnoses are the disruptive behavior disorders (DBDs): Conduct Disorder (CD) and Oppositional Defiant Disorder (ODD). A review of 29 epidemiologic and clinical studies of children and adolescents diagnosed with ADHD, reported the co-occurrence of ODD in 35% and CD in 30–50% of subjects [12]. As such, issues of comorbidity are salient obstacles to gaining an understanding of the expression of aggression in adolescence and young adulthood as it specifically relates to ADHD.

Several studies have concluded that early aggressive behaviors associated with childhood CD, and not hyperactivity, are the primary predictors of adolescent aggressive and antisocial behavior [13–15]. Alternatively, it has been suggested that an ADHD × CD symptom interaction most clearly predicts later antisocial behavior [16]. Additionally, some investigators have found that early ADHD, even after controlling for CD, predicts poor outcome [5], while other results suggest that persistence of ADHD into adolescence predicts later antisocial behavior [17] irrespective of childhood status.

While the focus of most longitudinal research examining the outcome of children diagnosed with ADHD has been on comorbid CD during childhood, a comorbid diagnosis of ODD also portends greater psychosocial difficulties in children with ADHD [18]. One study [19], examining the developmental trajectories among a clinically referred sample of 177 adolescents diagnosed with childhood disruptive behavior disorders, reported a developmental pathway where ADHD, ODD, and CD all showed continuity from childhood to adolescence. Additionally, DBDs displayed escalating trajectories such that early ADHD was found to predict the development of ODD in many individuals, while ODD was found to oftentimes predict later CD, anxiety and depression. Thus, it appears that ADHD is associated with the development of the often verbally expressed, temperamental difficulties associated with ODD, which, in turn, are associated with the emergence of more severe maladaptive behavioral difficulties associated with CD. According to this model ODD increases the risk for the development and expression of later aggressive behaviors associated with a diagnosis of CD.

Most longitudinal studies following children with ADHD have focused on overt aggressive and antisocial behaviors [5, 8, 10, 15, 16, 20, 21]. While aggression is an overt