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Physical aggression in children and adolescents with autism spectrum disorders

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ABSTRACT

Aggression is a clinically significant problem for many children and adolescents with autism spectrum disorders (ASD). However, there have been few large-scale studies addressing this issue. The current study examined the prevalence and correlates of physical aggression in a sample of 1584 children and adolescents with ASD enrolled in the Autism Treatment Network. The prevalence of aggression was 53%, with highest prevalence among young children. Aggression was significantly associated with a number of clinical features, including self-injury, sleep problems, sensory problems, GI problems, communication and social functioning. In multivariate models, self-injury, sleep problems, and sensory problems were most strongly associated with aggression. The results indicate that aggression is markedly prevalent, and clinical implications and directions for future research are discussed.

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1. Introduction

There is considerable variability in both core and associated symptom presentation across individuals with autism spectrum disorders (ASD). Although communication problems, social impairment, and restricted and repetitive behaviors are primary features of ASD (American Psychiatric Association, 2000), these symptoms range in type and severity across individuals. There is also variability in co-morbid conditions, ranging from cognitive impairment to medical and psychiatric conditions (Myers & Johnson, 2007; Simonoff et al., 2008). These co-occurring problems often lead to considerable functional impairment in and of themselves, exacerbating the effects of core symptoms on overall function. Among these associated problems, physical aggression appears to be particularly problematic, and has been associated with serious negative outcomes in the general population (Card & Little, 2006; Coie, Dodge, Damon, & Eisenberg, 1998; Lochman & Wayland, 1994; Zahn-Waxler, Park, Essex, Slattery, & Cole, 2005), as well as among individuals with autism and other developmental disabilities (Bromley & Blacher, 1991; Lecavalier, Leone, & Wiltz, 2006; McIntyre, Blacher, & Baker, 2002; Shoham-Vardi et al., 1996; Tomanik, Harris, & Hawkins, 2004).

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1.1. Prevalence of aggression in ASD

Despite the clinical significance of aggression, there has been little research directly examining the scope of the problem in children and adolescents with ASD. Among a sample of 298 adults with intellectual disabilities and ASD, [Matson and Rivet \(2008\)](#) found that 15–18% engaged in aggression toward others. Similarly, [Lecavalier \(2006\)](#) found that among 487 children receiving educational services under the disability category of autism, 14.3% of were reported by teachers to attack others to a moderate/severe degree. In a more recent study of 121 children receiving educational services for autism, [Farmer and Aman \(2011\)](#) found that 23% were reported by parents to shove or push others to a moderate/severe degree, 11.6% were reported to hit others with objects, 17.5% were reported to hit forcefully, and 9.9% were reported to bite others.

Prevalence rates were considerably higher among a well-characterized sample of 1380 children with ASD participating in the Simons Simplex Collection study ([Kanne & Mazurek, 2011](#)). The results indicated that 56% of the sample was reported by parents to demonstrate some degree of *current* physical aggression toward caregivers (32% toward non-caregivers), while 68% had a *history* of physical aggression toward caregivers (49% toward non-caregivers). These previous discrepancies in reported prevalence likely relate to differences in measurement, population, and time frame studied. Studies of large, well-characterized, and community-referred samples are still needed to establish the prevalence of aggression across age and ASD severity.

1.2. Correlates and predictors of aggression

Although the nature and developmental course of aggression has been well-studied among typically developing populations ([Broidy et al., 2003](#); [Lahey, Waldman, & McBurnett, 1999](#); [Nagin & Tremblay, 2001](#); [NICHD Early Child Care Research Network, 2004](#); [Tremblay et al., 2004](#)), there have been very few large-scale studies of group-level predictors of aggression among individuals with ASD. Thus, it is not clear whether findings from the general population are relevant to populations of children and adolescents with ASD. For example, among typically developing children, lower intellectual functioning ([Lahey et al., 1999](#); [Moffitt, 1993](#)), speech and language delays ([Dionne, Tremblay, Boivin, Laplante, & Perusse, 2003](#); [Stevenson, Richman, & Graham, 1985](#)), and male sex ([NICHD Early Child Care Research Network, 2004](#)) are all significantly associated with increased risk of aggression. Family variables have also been strongly associated with aggression in the general population, including lower household income, younger maternal age at childbirth, and lower parental education ([Nagin & Tremblay, 2001](#); [Tremblay et al., 2004](#)).

Notably, in the first study to examine cross-sectional predictors of aggression in a large sample of children with ASD, [Kanne and Mazurek \(2011\)](#) found that few of these previously established variables were associated with aggression in ASD. As expected, younger age was associated with increased likelihood of aggression. In contrast, none of the other variables predicted by general population studies were significant predictors (including IQ, language, or parental education). In addition, autism-specific symptoms, including ASD symptom severity, self-injurious behavior, ritualistic behavior, and resistance to change, were significant concurrent predictors of physical aggression in multivariate models. Though these findings indicate that difficulties specific to the ASD phenotype may play an important role in the occurrence of aggression, previous studies of aggression in ASD have not examined the role of potentially relevant co-occurring medical and behavioral symptoms.

1.3. Co-occurring problems potentially relevant to aggression

Children with ASD face a range of complex co-occurring challenges, including sleep problems, gastrointestinal problems, sensory abnormalities, and self-injury, which may also directly relate to the occurrence of aggression. Many of these problems have been associated with aggression among typically developing children, and emerging evidence supports a similar association among children with ASD.

Sleep problems occur in a large percentage of children with ASD, with prevalence rates ranging from 50% to 80% ([Couturier et al., 2005](#); [Krakowiak, Goodlin-Jones, Hertz-Picciotto, Croen, & Hansen, 2008](#); [Miano et al., 2007](#); [Souders et al., 2009](#)). Sleep problems have been found to be highly associated with aggression in typically developing children ([Chervin, Dillon, Archbold, & Ruzicka, 2003](#); [Lavigne et al., 1999](#); [Sadeh, Gruber, & Raviv, 2002](#)), children with sleep problems have been found to be 2–3 times more likely to demonstrate aggressive behavior than children without sleep problems ([Chervin et al., 2003](#)). Emerging research among children with ASD appears to be consistent with these findings. For example, [Mayes and Calhoun \(2009\)](#) found that aggression was one of the variables most strongly associated with sleep disturbance in a sample of 477 children with autism. More recently, [Goldman, Richdale, Clemons, and Malow \(2012\)](#) also found that children with ASD and sleep problems were more likely to demonstrate aggression than those without sleep problems.

With regard to other co-occurring challenges, gastrointestinal (GI) problems may also have relevance to the occurrence of aggression. GI problems are also common in children with ASD, with prevalence rates ranging from 24% to 70% or higher, depending on symptom definitions ([Buie et al., 2010](#); [Horvath, Papadimitriou, Rabszty, Drachenberg, & Tildon, 1999](#); [Molloy & Manning-Courtney, 2003](#); [Valicenti-McDermott et al., 2006](#)). There is also some evidence of an association between behavior problems and GI problems in ASD, and a recent consensus report concluded that aggression may be an indicator of abdominal pain in individuals with ASD ([Buie et al., 2010](#)). However, a population-based study of children with ASD did not find significant differences in aggression when comparing children with and without GI problems ([Maenner et al., 2012](#)).

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