



An investigation of anxiety in children and adolescents with autism spectrum disorder[☆]



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ABSTRACT

Anxiety-related concerns are among the most common presenting problems for school-age children and adolescents with autism spectrum disorder (ASD) in clinical settings. The current study examined the relationship between anxiety and gastrointestinal (GI) symptoms, sleep problems, and challenging behavior in a sample of children and adolescents with ASD, aged 6–17 years. Parental measures were completed by 109 parents of children and adolescents with ASD. Significant positive correlations were found between anxiety and GI symptoms, and anxiety and sleep problems. A hierarchical linear regression indicated that demographic variables, GI symptoms, sleep problems, and challenging behavior accounted for 34% of the variance in anxiety, with sleep, severity of self-injurious behavior, age, and diagnosis of intellectual disability emerging as significant predictors. The findings suggest that these factors should be considered during clinical practice as they may serve as important alerts for clinicians to consider assessing for anxiety disorders. Future research should investigate these variables further by examining their associations with specific types of anxiety disorders.

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1. Introduction

High rates of anxiety have been reported among children and adolescents with autism spectrum disorder (ASD). Research indicates that anxiety is more commonly observed in youth with ASD compared to typically developing peers (Bellini, 2004; Guttman-Steinmetz, Gadow, DeVincent, & Crowell, 2010; Russell & Sofronoff, 2005) or youth with conduct disorder (Green, Gilchrist, Burton, & Cox, 2000) or attention deficit/hyperactivity disorder (ADHD; Gadow, DeVincent, & Schneider, 2009). Researchers have suggested that anxiety-related concerns are among the most common presenting problems for school-age children and adolescents with ASD in clinical settings (Ghaziuddin, 2002). The most frequently occurring of the anxiety disorders in children and adolescents with ASD appears to be specific phobias, generalized anxiety disorder, separation anxiety disorder, obsessive–compulsive disorder, and social phobia (Evans, Canavera, Kleinpeter, Maccubbin, & Taga, 2005; Matson & Love, 1990; White, Oswald, Ollendick, & Scahill, 2009).

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1.1. Prevalence of anxiety in ASD

Researchers have reported that in small outpatient samples anywhere from 11% to 84% of children and adolescents with ASD experience some degree of anxiety (Muris, Steerneman, Merckelbach, Holdrinet, & Meesters, 1998; White et al., 2009). In clinical samples, approximately 55% of children with ASD have been found to meet diagnostic criteria for at least one anxiety disorder (de Bruin, Ferdinand, Meester, de Nijs, & Verheij, 2007), while a meta-analysis by van Steensel, Bogels, and Perrin (2011) indicated that 40% of children and adolescents have at least one anxiety disorder. The wide-ranging prevalence of anxiety in children with ASD is likely due to method variance with respect to assessment instrument (interview versus self-report scale), informant (parent versus child), anxiety classification (symptoms versus disorders), and type of anxiety disorder measured (Vasa et al., 2013).

1.2. Importance

Although, anxiety symptoms and disorders are highly prevalent in children and adolescents with ASD, they are often unrecognized or misdiagnosed (MacNeil, Lopes & Minnes, 2009). Unfortunately, differentiating between comorbid anxiety and characteristics of ASD can be problematic (Tsai, 2006). It remains unclear whether anxiety difficulties constitute a separate condition or align more closely with core ASD features. For example, social withdrawal in ASD may appear similar to social avoidance in social anxiety disorder. Recognizing the presentation of anxiety symptoms presents a further challenge for practitioners as the appearance of anxiety symptoms may differ in individuals across the range of intellectual functioning and verbal abilities. It is important to identify comorbid anxiety in children and adolescents with ASD because anxiety symptoms can cause considerable distress and interfere with daily functioning (Muris et al., 1998). Comorbid anxiety disorders can cause acute distress, amplify the core symptoms of ASD and trigger behavioral difficulties including tantrums, aggression and self-injury (Canitano, 2006). Anxiety in individuals with ASD has also been shown to be related to various other symptoms including gastrointestinal (GI) issues (Mazurek et al., 2013; Nikolov et al., 2009) and sleep problems (Malow et al., 2006; Rzepecka, McKenzie, McClure, & Murphy, 2011).

1.3. Anxiety and gastrointestinal symptoms

Varying results have been reported for the presence of GI symptoms in individuals with ASD. Prevalence rates of 46% to 84% have been reported in some studies (Horvath et al., 2000; Horvath & Perman, 2002a,b; Kuddo & Nelson, 2003; Mannion, Leader, & Healy, 2013; Melmed, Schneider, Fabes Philips, & Reichelt, 2000), while other studies found smaller prevalence rates of GI symptoms in children with ASD, ranging from 22.7% (Nikolov et al., 2009) to 24% (Molloy & Manning-Courtney, 2003). A relatively small body of research has investigated the relationship between anxiety and GI symptoms. Nikolov et al. (2009) reported that in a sample of 172 children with pervasive developmental disorders, 39 (23%) were found to have GI problems. Compared to children without GI problems, those with GI problems showed greater symptom severity on measures of irritability, anxiety and social withdrawal. Similar findings have been reported in studies consisting of a greater sample sizes. Williams, Christofi, Clemmons, Rosenberg, and Fuchs (2012) reported that one third of 3122 children (aged 2–18 years) with an ASD diagnosis, experienced at least one chronic GI symptom. The results indicated that clinical anxiety was associated with chronic GI symptoms in children with autism. Chronic GI complaints were greater in children with clinical anxiety compared to those with no anxiety. In a study by Mazurek et al. (2013), a sample of 2973 children and adolescents, participants with chronic constipation, chronic diarrhea, chronic bloating, chronic nausea and chronic abdominal pain had higher anxiety than those without these symptoms. Anxiety contributed to the prediction of chronic constipation, chronic bloating, chronic nausea and chronic abdominal pain, but not to the prediction of chronic diarrhea.

1.4. Anxiety and challenging behavior

Challenging behaviors are prominent in the ASD population. The term ‘challenging behavior’ is used to describe a broad class of unusual behaviors shown by individuals with developmental disabilities including aggression, destructiveness, self-injurious behavior (SIB), and stereotyped behaviors (Emerson, 2001). A study by Murphy, Healy, and Leader (2009), involving 157 children diagnosed with ASD, reported that 82% of the sample displayed some form of challenging behavior. A number of studies have explored the relationship between anxiety and challenging behavior in individuals with ASD. Cervantes, Matson, Tureck, and Adams (2013) utilized the Baby and Infant Screen for Children with aUtism Traits (BISCUIT; Matson, Boisjoli, & Wilkins, 2007) to explore the relationship of anxiety/repetitive behavior symptom severity and challenging behaviors in infants and toddlers with ASD. Children with ASD who displayed more severe impairment associated with anxiety/repetitive behavior demonstrated higher rates of overall challenging behavior than those with ASD who evinced no to minimal anxiety impairment. Matson, Mahan, Sipes, and Kozlowski (2010) also used the BISCUIT to investigate the effects of comorbid psychopathology on challenging behavior among atypically developing infants and toddlers, with and without an ASD diagnosis. Greater levels of symptoms of comorbid psychopathology were related to higher rates of challenging behaviors. Specifically, aggressive and destructive behavior, stereotypies, and SIB were particularly pronounced when moderate or severe levels of symptom endorsement were present on the psychopathology factors of anxiety/repetitive behavior.

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