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# School-related anxiety symptomatology in a community sample of primary-school-aged children on the autism spectrum

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## ABSTRACT

Although it is recognized that the prevalence of anxiety is elevated in children with autism spectrum disorder, there has been very limited research exploring such anxiety in school contexts. As a result, there is limited detailed information for teachers or educators on how anxiety in autism may present in the school setting for children on the autism spectrum. The aims of this study were to (a) report the profile of results on a measure of school anxiety in a community sample of children on the autism spectrum, (b) investigate whether scores on this measure differed with child variables or enrollment into a mainstream or special school, and (c) document the level of agreement between teacher-reported and parent-reported anxiety symptoms. Teachers of 92 children aged 5–12 completed a questionnaire pack including the School Anxiety Scale-Teacher Rating (SAS-TR). Elevated levels of anxiety (above the SAS-TR total anxiety clinical cut-off) were noted in 21.7% of the sample, with a larger proportion of children scoring above the generalized anxiety cut-off (27.2%) than the social anxiety cut-off (14.1%). Older participants ( $U = 744, p = .02, \eta^2 = 0.06$ ) and those attending mainstream schools ( $U = 661, p = .02, \eta^2 = 0.06$ ) had significantly higher scores on the generalized, but not the social, anxiety subscales, with effect sizes suggesting a medium effect. The results highlight the need for further, more detailed research into the presentation and impact of school anxiety in children with autism attending both mainstream and special schools.

## 1. Introduction

Autism spectrum disorder is a neurodevelopmental disorder characterized by impairments in reciprocal social communication and interaction, and individualized patterns of repetitive and restrictive behavior (American Psychiatric Association, 2013). Recent estimates place the prevalence of autism at 1 in 68 children (Centers for Disease Control and Prevention, 2014). It is now recognized that one of the most prevalent mental health disorders in children, anxiety disorders, are even more common in children on the autism spectrum.<sup>1</sup> Meta-analyses place the prevalence of anxiety in autism at around 40% (van Steensel, Bogels, & Perrin, 2011), compared to 13.4% of children worldwide without autism (Polanczyk, Salum, Sugaya, Caye, & Rohde, 2015).

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<sup>1</sup> The term “on the autism spectrum” is used in concordance with preferences of individuals on the autism spectrum, their parents and professionals working in this area (Kenny et al., 2016).

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### 1.1. Autism and anxiety in educational settings

It is well documented that anxiety can have a serious impact on the school experience of children without autism, being associated with poor academic achievement, poorer adaptive outcomes (Langley, Bergman, McCracken, & Piacentini, 2004), increased school refusal (Mychailyszyn, Mendez, & Kendall, 2010), and reduced engagement and attainment in both academic and social aspects of school life (Weissman, Antinoro, & Chu, 2009). While there is only limited research focusing upon anxiety and outcomes in autism, it is evident that the presence of anxiety combined with the profile of autism characteristics is likely to significantly reduce an individual's ability to successfully meet and cope with school-related expectations (Ashburner, Ziviani, & Rodger, 2010; Ferraioli & Harris, 2011; Fujii et al., 2013).

Despite the high prevalence of anxiety in children on the autism spectrum, there is scant research that has investigated anxiety in students on the autism spectrum in school contexts. The school context, including environmental, social, and academic factors, has been identified as contributing to stress and anxiety in children on the autism spectrum (review Roberts & Simpson, 2016). High school students on the autism spectrum describe experiencing anxiety in social situations particularly during unstructured periods, and difficulties dealing with uncertainties during the school day (Hebron & Humphrey, 2014). This corresponds with both social anxiety and generalized anxiety being identified as common co-existing psychiatric conditions in school-aged children on the autism spectrum (Simonoff et al., 2008). Social anxiety is related to social functioning difficulties (Chang, Quan, & Wood, 2012) while generalized anxiety, characterized by excessive worrying about events and activities, is less related to social competence in children on the autism spectrum (Johnston & Iarocci, 2017). Both generalized and social anxiety have been shown to increase with age (Johnston & Iarocci, 2017; Kuusikko et al., 2008). Understanding anxiety in children on the autism spectrum, within the school context, is critical to developing supports and identifying strategies to ameliorate school factors which may impact on the mental health of these children.

Surprisingly few studies have included teacher-reported symptoms of anxiety. One systematic review of anxiety in autism identified only three studies with both parent and teacher ratings of anxiety (van Steensel et al., 2011). Where teacher reports on anxiety have been included, few have used anxiety-specific measures, relying instead on mean subscale or total scores from measures aimed at describing a broad range of emotional and/or behavioral presentations (e.g., Developmental Behaviour Checklist for teachers, Einfeld & Tonge, 2002; Strengths and Difficulties Questionnaire for teachers, Goodman, 1997). As a result, there is limited detailed information on how anxiety in autism may present in the school setting for children on the autism spectrum, and how this may be similar to or different from that noted at home.

### 1.2. Inter-informant agreement on measures of anxiety in autism

Using a multi-informant assessment approach (Kraemer et al., 2003) that considers reports from informants who observe the individual in different contexts (e.g., home vs. school) can yield a more comprehensive picture of symptomatology that may vary across different contexts (Stratis & Lecavalier, 2015). Different informants may also interact differently with the individual, or have different expectations, standards, or experience of working with individuals with autism and/or anxiety. These factors can impact upon the topography and frequency of the symptomatology observed as well as on the way observers rate these on standardized checklists. Both informant agreements and discrepancies can impact assessment, classification, and treatment of the presenting disorder (Beesdo, Knappe, & Pine, 2009; Herzig-Anderson, Colognori, Fox, Stewart, & Masia Warner, 2012). However, multi-informant approaches are only useful if each informant is considered to have valid information to provide and is provided with reliable methods to share such information (see discussion in De Los Reyes et al., 2015).

Repeated meta-analyses on data from typically developing children highlight that informant-agreement levels are lower on internalizing than externalizing disorders (Achenbach, McConaughy, & Howell, 1987; De Los Reyes et al., 2015). Discrepancies between informant reports of externalizing versus internalizing disorders such as anxiety may be even more pronounced in children on the autism spectrum, given the difficulties in recognizing anxiety in these children. Low inter-informant agreement levels have been reported for internalizing disorders in autism (Stratis & Lecavalier, 2015). Studies reporting low correlations between parent and teacher ratings for anxiety in autism (e.g., Kanne, Abbacchi, & Constantino, 2009) suggest the low levels of agreement may not simply be a scaling issue (i.e., one informant rating consistently lower than the other) but that informants are reporting different patterns in these different contexts. Explanations for this low agreement level include the attribution bias context model (De Los Reyes & Kazdin, 2005), informant bias (Hoyt, 2000), and differing presentation due to differences in the cognitive and social demands between settings (Allen & Lerman, 2017). Comparisons of group mean average scores or between informants may provide an indication of whether the overall level of anxiety is similar between informants and/or contexts, but such comparisons do not answer the potentially more interesting clinical question of whether the same symptoms of anxiety are noted by informants at the same levels across contexts.

To our knowledge, only two studies to date have reported item-level teacher and parent data for anxiety symptomatology in children on the autism spectrum. Guttmann-Steinmetz, Gadow, DeVincent, and Crowell (2010) reported mean group scores for individual items from the parent and teacher versions of the Child Symptom Inventory 4th Edition (CSI-4; Gadow & Sprafkin, 2002). However, they did not explore agreement between the parent and teacher ratings. Weisbrot, Gadow, DeVincent, and Pomeroy (2005) reported item-level data from the CSI-4 from 272 parents and 268 children with pervasive developmental disorders (PDD). They observed group means for each item and concluded that teachers provided higher ratings than parents for two general anxiety items (unable to relax, low energy level), but that parents provided higher ratings than teachers for specific phobia items, although no comparisons of ratings were made. Both studies used the CSI-4, a measure of emotional/behavioral factors, rather than an anxiety-

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