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The effect of intellectual disability on the presence of comorbid symptoms in children and adolescents with autism spectrum disorder

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ABSTRACT

Research is limited in examining the presence of comorbid symptoms in children and adolescents with autism spectrum disorder (ASD) and co-occurring intellectual disability (ID). The current study aimed to expand knowledge in this area by evaluating the presence of comorbid symptoms in children and adolescents with ASD, compared to those with ASD and ID. Comorbid symptoms examined using the *Autism Spectrum Disorders-Comorbidity for Children* (*ASD-C-C*) included tantrum behavior, repetitive behavior, worry/depression, avoidant behavior, under-eating, conduct problems, and over-eating. Two hundred and nineteen children and adolescents ranging from 3 to 16 years of age participated in the study. Significant differences were not found between the groups on any of the comorbid symptoms measured. The implications of these findings on treatment are discussed.

1. Introduction

Intellectual disability (ID) is associated with impairment in cognitive functioning, social, and adaptive skills (Matson, Carlisle, & Bamburg, 1998; Matson, Rush, et al., 1999). Additionally, communication and social skill deficits as well as challenging behaviors are often observed in individuals with ID (Kozlowski, Matson, Sipes, Hattier, & Bamburg, 2011; Matson & Cervantes, 2013). Among common challenging behaviors, individuals with ID may exhibit self-injury, aggression, property destruction, pica, and stereotypies (Kozlowski et al., 2011; Matson & Boisjoli, 2007; Matson et al., 2005). Researchers have found that the rates of comorbid psychopathology in the ID population are substantially higher than in the general population (Matson, LeBlanc, Weinheimer, & Cherry, 1999); estimates as high as 40% of individuals with ID have at least one comorbid condition (Kozlowski et al., 2011; Smith & Matson, 2010). Likely comorbid mental health conditions include depression, anxiety disorders, and attention-deficit/hyperactivity disorder (Matson & Smiroldo, 1997). Additionally, researchers have found that if an individual presents with substantial deficit in one comorbid domain, (s)he will evince more significant impairments across multiple domains (Kozlowski et al., 2011). These data have important implications for treatment and the side effects that may follow (Advokat, Mayville, & Matson, 2000; Matson & Wilkins, 2008a, 2008b; Matson, Mayville, et al., 1998; Singh, Matson, Cooper, Dixon, & Sturmey, 2005).

Autism spectrum disorder (ASD) is among the most common comorbid disorders in individuals with ID (Matson, Dempsey, & Fodstad, 2009). It has been estimated that 4–40% of individuals with ID have ASD, and 50–70% of individuals with ASD have ID (Artigas-Pallares, Rigau-Ratera, & Garcia-Nonell, 2007; LaMalfa, Lassi, Bertelli, Salvini, & Placidi, 2004). ASD

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is a neurodevelopmental disorder characterized by qualitative impairments in social communication as well as the presence of restricted, repetitive, and stereotyped patterns of interests, activities, or behaviors (Matson, Boisjoli, Hess, & Wilkins, 2010; Matson, Kozlowski, Hattier, Horovitz, & Sipes, 2012; Worley & Matson, 2012). Some researchers have found that individuals with greater intellectual deficits are more likely to have ASD (Vig & Jedrysek, 1999). Other researchers have indicated that autism symptomology is exacerbated by the presence of more severe cognitive impairment (LoVullo & Matson, 2009; Matson, Dempsey, LoVullo, & Wilkins, 2008). When ASD and ID co-occur, higher rates of stereotypies and challenging behaviors as well as greater deficits in social and adaptive functioning and verbal and non-verbal communication have been observed (Matson, Rivet, Fodstad, Dempsey, & Boisjoli, 2009).

A high rate of comorbid psychopathology has been found within the ASD population (Matson & LoVullo, 2009). Researchers have estimated that as many as 70% of children with ASD present with at least one comorbid disorder (Simonoff, Pickles, Charman, Chandler, & Baird, 2008). Comorbid disorders in children and adolescents with ASD are associated with functional impairments above and beyond those ascribed to the core symptoms of ASD (Joshi et al., 2010; Leyfer et al., 2006). Further, researchers have found individuals with ASD evince significantly more comorbid symptomology than peers with ID (Brereton, Tonge & Einfeld, 2006). However, the co-occurrence of ASD and ID has been associated with an even greater increase in rates of comorbid psychopathology in adults (LoVullo & Matson, 2009). The most common co-occurring disorders found in adults presenting with both ASD and ID include depression, bipolar disorder, schizophrenia, and anxiety (Matson, Gonzalez, Wilkins, & Rivet, 2008).

While the co-occurrence of ASD and ID is clearly associated with more comorbid symptomology in adults, it is uncertain whether children and adolescents with ASD are also at greater risk for comorbidities. The current study will examine the predictive nature of ASD as well as level of intellectual functioning in determining presence of comorbid symptoms in children and adolescents. The symptoms explored will include tantrum behaviors, repetitive behaviors, worry/depression, avoidant behaviors, conduct disorder, under-eating, and over-eating. Based on the existent research literature, it is hypothesized that the presence co-occurring ID will be associated with a more significant presentation of comorbid symptoms.

2. Method

2.1. Participants

Two hundred and nineteen children and adolescents, 3–16 years of age ($M = 8.21$, $SD = 4.37$) included in this study were selected from a larger database. All participants held a diagnosis of ASD. Diagnoses were made using a comprehensive assessment battery that included structured interviews, ratings scales, behavioral observation, and developmental/medical history by trained masters or doctoral level graduate students working under the supervision of a licensed clinical psychologist with over 30 years of experience. Additionally, all participants met ASD diagnosis criteria according to the *DSM-IV-TR/ICD-10 Checklist* (Matson, Gonzales, Wilkins, & Rivet, 2008).

Participants were divided into two groups; those with ID and those without. Diagnosis of ID was determined by IQ scores assessed through either the *Wechsler Intelligence Scale for Children-Fourth Edition* (*WISC-IV*) or *Stanford-Binet Intelligence Scales-5th Edition (SB5)*. Cognitive tests were chosen based on a range of individual characteristics including age, level of functioning, language ability, and level of ASD symptomology. Participants with an IQ score below 70 were included in the ID group ($n = 37$), and those with an IQ score above 70 were assigned to the non-ID group ($n = 182$). The sample was composed of 179 males and 40 females, of which 82.57% were Caucasian, 11.01% were African American, 2.75% were Hispanic, and 3.67% were of other or unspecified ethnicity. Demographics for the sample are included in Table 1.

2.2. Measures

2.2.1. Autism Spectrum Disorders-Comorbidity Child Version (ASD-C-C; Matson & González, 2007)

The *ASD-C-C* is a subscale of the *Autism Spectrum Disorder Battery-Children Version (ASD-C)*. The *ASD-C* is a measure used in the assessment of ASD symptoms, comorbid disorders, and problems behaviors in children and adolescents 3–16 years of

Table 1
Demographic information.

	ASD ($n = 182$)	ASD and ID ($n = 37$)
Age in years	7.65	10.97
(SD)	(3.35)	(3.99)
Gender		
Male	81.32%	83.78%
Female	18.68%	16.22%
Race		
Caucasian	88.95%	51.35%
African-Am.	3.87%	45.95%
Hispanic	3.31%	0.0%
Other/not specified	3.87%	2.73%

Note: SD = standard deviation.