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Exploration of the correlation between autism spectrum disorder symptomology and tantrum behaviors

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ABSTRACT

The purpose of the current study was to investigate the relationship between the presence of Autism Spectrum Disorder (ASD) symptoms and tantrum behaviors in 598 children ranging in age from two to sixteen years old who meet cutoffs for ASD. Diagnostic categories created in the current study were provided by the *Autism Spectrum Disorder – Diagnostic Child Version* (ASD-DC). Initial analysis replicated previous research revealing significant differences in the expression of tantrum behavior between the ASD, Atypical, and Normal groups. Pearson Bivariate correlations were then computed for each individual's ASD symptom score and their total score on the Tantrum behavior subscale. Follow-up correlations found significant positive correlations between individual's in the Atypical, Normal, and ASD categories and their scores for the Tantrum behavior subscale of the *Autism Spectrum Disorders – Comorbidity for Children* (ASD-CC). Post hoc analyses revealed that the correlation between ASD symptomology and tantrum behaviors in the Normal group was significantly different when compared to children in the ASD group.

Autism spectrum disorders (ASDs) comprise a class of neurodevelopmental disorders first apparent in early childhood, characterized by deficits in socialization, communication, and the presence of repetitive behavior or restricted interests (Matson et al., 1996; Matson & Boisjoli, 2008; Matson, Gonzalez, Wilkins, & Rivet, 2007; Matson & Wilkins, 2007). ASDs result in lifelong impairments, resulting in lasting difficulties and a need for support across the lifespan. Early identification and treatment of ASDs portends the best outcomes (Eikeseth, 2009; Hattier & Matson, 2012). The value and need for such interventions is underscored by numerous comorbid physical conditions (Efstratopoulou, Janssen, & Simons, 2012; Hattier & Matson, 2012; Lin, Lai, & Gau, 2012; Matson, Matson, & Beighley, 2011). Additionally, ASD is a risk factor for psychopathology and a host of learning issues and challenging behaviors (Mashal & Kasirer, 2012; Matson, Belva, Hattier, & Matson, 2012; Poon, 2012; Smith & Matson, 2010a, 2010b, 2010c). A litany of challenging behaviors have been reported in the literature including, self-injury, aggression, feeding problems, and property destruction (Matson, Dempsey, & Fodstad, 2009; Matson, Tureck, & Rieske, 2012; Matson & Turygin, 2012; Medeiros, Kozlowski, Beighley, Rohan, & Matson, 2012). Among the most debilitating of these challenging behaviors are tantrums, which restraint attempts at normalization and development and impede learning.

Tantrum behaviors are those which involve a cluster of behaviors including defiance, oppositional behavior, screaming, crying, aggression, and property destruction, which may be difficult to stop once they have begun (Green, Whitney, & Potegal, 2011). Tantrum behaviors are developmentally appropriate in very young children and commonly observed in typically developing children prior to the development of emotion regulation. However, in typically developing children,

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when tantrums are excessive or continue into later childhood, they are associated with negative outcomes (Caspi, Elder, & Bem, 1987; Green et al., 2011; Stevenson & Goodman, 2001; Stoolmiller, 2001). Tantrum behaviors are associated with expressions of negative emotions, particularly anger and sadness (Green et al., 2011), and are often characterized by attention, escape, and tangible functions (Matson, Sipes et al., 2011). Tantrums of older children in inpatient settings have been observed to be functionally similar to those of young typically developing children (Potegal, Carlson, Marguiles, Gutkovich, & Wall, 2009).

Tantrum behaviors are often observed in children and adults with ASD. Tantrum behaviors in children with ASD may be similar in nature to those observed in typically developing children, but tend to be more severe and persistent in children with ASD. Given the host of communication, socialization, and other deficits these children display, tantrums further compound an already complicated picture. The inability of children with ASD to effectively communicate their needs, or understand and relate to the social cues of others may predispose the child to tantrum behaviors as a means of causing a social response.

Tantrums are more common in children with ASD compared to children without autism who have comparable levels of intellectual functioning (Ando & Yoshimura, 1979). However, this cannot be completely accounted for by language deficits. Children with ASD have been found to also exhibit more tantrum behavior compared to children with language deficits. Sipes, Matson, Horovitz, and Shoemaker (2011) found that children with ASD are more likely to exhibit tantrum and conduct problems, but that communication does not function as a moderating variable for these behaviors, but may differentially effect tantrum behavior expression as a function of other variables, including age and functioning. Greater impairments in social skills in children with ASDs are related to greater expression of aggression/destruction and stereotypic behavior (Matson, Neal, Fodstad, & Hess, 2009). The implementation of a social story has been observed to alleviate some tantrum behaviors for children who frequently engaged in tantrum behavior, suggesting that social deficits play a role in the expression of tantrum behavior in this population (Kuttler, Myles, & Carlson, 1998).

As deficits in socialization, communication, and the presence of repetitive or stereotyped behaviors may contribute to the presence of behavior problems in children with and without ASD, we investigated whether this occurs within the diagnostic categories that generally relate to the severity and presentation of the disorder. Although the *Autism Spectrum Disorder – Diagnostic Child Version* (ASD-DC) includes three diagnostic groups; Autistic disorder (AD), Asperger's Syndrome (AS), Pervasive Developmental Disorder – Not Otherwise Specified (PDD-NOS) for ASDs the current study will only analyze them collectively as a single ASD category. The current categorization was selected due to the impending changes in the ASD category proposed by the DSM-5 (Beighley et al., in press; Matson, Belva, Horovitz, Kozlowski, & Bamburg, 2012; Mayes, Black, & Tierney, 2013; Wilson et al., in press). The authors hypothesized that as ASD symptomology increases, so does the frequency and severity of tantrum behaviors. The present study examined the relationship between ASD symptom severity and the severity of tantrum behaviors.

1. Methods

1.1. Participants

Participants in the current study consisted of children ($N = 598$) between the ages of two and sixteen ($M = 8.25$, SD = 3.48) who received services at a university clinic within the last six years. According to the regulations set forth by Louisiana State University's Institutional Review Board all parents/caretakers provided informed consent prior to assessment administration. Informants completing the assessment packages of parent-report measures were either the children's biological parents or legal guardians. The researcher providing the measures remained available to answer any questions the informants may have had. Included in the assessment packets was the *Autism Spectrum Disorder Battery - Child Version* (ASD-C), which includes the *Autism Spectrum Disorder – Diagnostic Child Version* (ASD-DC) and *Autism Spectrum Disorder – Comorbid Child Version* (ASD-CC), and the *Autism Spectrum Disorder – Problem Behavior Child Version* (ASD-PB).

Participants were administered both the ASD-DC and the Tantrum behavior subscale of the ASD-CC. The sample population consisted of 598 children and adolescents of which, 420 were males (70.9%) and 171 were females (29.1%). The ethnicity of the children included in the sample based upon informant report included; African-American (9.3%), Caucasian (67.7%), Hispanic/other (6.4%), and not reported (16%). Individual's diagnostic categorization for the purposes of this study was based upon the cumulative score of the ASD-DC. The ASD group ($n = 341$) included all of the ASD categories on the ASD-DC. Group membership for the Atypically developing ($n = 104$) and Typically developing ($n = 154$) groups was based upon item endorsement. The reliability, sensitivity and specificity of the ASD-DC have been demonstrated elsewhere in the literature (see Matson, González, and Wilkins 2009).

1.2. Measures

1.2.1. Autism spectrum disorders-diagnostic child version (ASD-DC)

The ASD-DC is an informant-based measure containing 40 items designed to assess for the presence of symptoms associated with Autistic disorder (AD), Asperger Syndrome (AS), and Pervasive Developmental Disorder – Not Otherwise Specified (PDD-NOS) in children (Matson & Gonzalez, 2007b). The informants are asked to identify the extent to which the item is or has ever been a problem for their child compared to a typically-developing peer. Ratings are based upon a 3-point