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A contrast of comorbid condition and adaptive function between children with Autism Spectrum Disorder from clinical and non-clinical populations



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ABSTRACT

To investigate factors that might hamper early identification of Autism Spectrum Disorder (ASD), the present study examined differences between comorbid conditions and adaptive functions measured by the BASC-2 PRS in an epidemiologically ascertained group of children with ASD (Clinical and Non-clinical ASD groups), those who were screened positive but confirmed not to have ASD (No-ASD), and a group of typical, community children ($N = 5222$). Results indicate that the Clinical ASD group scored lower on the Externalizing Problems composite, Aggression, and Conduct Problems scales than did the No-ASD group whereas the Non-clinical ASD group did not differ from the other two groups except on the Conduct Problem scale. Further, the Clinical ASD group significantly scored lower than the other two groups the Adaptive Skills composite. The scores of the Clinical ASD group on the Social Skills and Leadership scales were lower than those in the No-ASD group, but not those in the Non-clinical ASD group. Results suggest that the frequent comorbid behavioral problems and higher adaptive skills of children in a non-clinical population, compared to a clinical population could mask their core ASD symptoms, resulting in a delay for caretakers to seek appropriate services for these children.

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1. Introduction

Individuals with Autism Spectrum Disorder (ASD) are characterized by the impairments in the domains of social reciprocity and communication, as well as the presence of highly restrictive and repetitive behavioral/interest patterns with

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the onset in early childhood (American Psychiatric Association, 1994, 2013). For a variety of reasons, including broader diagnostic criteria and greater public awareness, studies of ASD conducted since 1980 have reported progressively higher prevalence estimates ranging from .07% to 2.6% (Autism & Developmental Disabilities Monitoring Network Surveillance Year 2010 Principal Investigators, 2014; Baird et al., 2006; Chakrabarti & Fombonne, 2001; Gillberg & Wing, 1999; Gillberg, 1984; Kim et al., 2011). The estimates reveal that ASD is not a rare disorder, more prevalent than cancer, diabetes, spina bifida and Down syndrome in the pediatric population (Filipek et al., 2000). The level of impairment and consequent service needs of individuals with ASD, while variable, are quite high even for the least severe cases (Jarbrink & Knapp, 2001). Impairment is life-long, and considerable support is required to navigate routine educational and social situations. The lifetime costs to society for a person with autism is estimated to be nearly 4 million U.S. dollars (Jarbrink & Knapp, 2001). Cumulating evidence suggests that early identification and intervention of children with ASD is crucial for the best outcomes (Dawson et al., 2009; Mays & Gillon, 1993).

There are several challenges to the early identification of ASD. First, there is substantial variability in the symptom expression of ASD: from non-verbal children with profound intellectual disability (ID) who are preoccupied with repetitive and stereotyped behaviors to verbally fluent children with high intelligence manifesting difficulties mainly in peer relationship and behavioral modification. This wide symptom variability makes an early, accurate diagnosis of ASD a complex and challenging process (Huerta & Lord, 2012; Ooi, Rescorla, Ang, Woo, & Fung, 2011). Second, just as with typical children, children with ASD follow a developmental process that lasts for years. Consequently, ASD symptoms also change over the course of development making it essential to consider developmental factors such as age and language level during the diagnostic process. Third, comorbid conditions in children with ASD pose another challenge in making early, accurate diagnoses of ASD. Hyperactivity, aggression, self-injurious behaviors, depressive or anxiety symptoms have been commonly reported in children with ASD (Leyfer et al., 2006; Matson & Nebel-Schwalm, 2007; Matson, Wilkins, & Macken, 2009; Simonoff et al., 2008; Tureck, Matson, May, & Turygin, 2013). When high functioning children with ASD (HFASD) present with these types of behavioral and/or emotional symptoms during primary health care visits, they can be easily mistaken to have conditions other than ASD because ASD symptoms are often overlooked.

Difficulties in making diagnoses pose significant challenges to early identification and intervention for children with ASD. Indeed, when our team has conducted an ASD prevalence study using a total population approach in Korean school-aged children, we reported a 2.6% prevalence with two-thirds of these children (1.9%) being previously unidentified and untreated in the community (i.e., “non-clinical” ASD group.) This so called “non-clinical” ASD group had clinical characteristics that were distinct and different from those children with ASD who have sought and/or received clinical/educational services (i.e., “clinical” ASD group). The non-clinical group had higher cognitive levels (mean performance IQ = 98), lower symptom severity, higher adaptive function and less male predominance (2.5:1) (Kim et al., 2011). In addition to these distinct clinical characteristics, it is possible that differences in comorbidity amongst the Non-clinical ASD group may have contributed to delays in early identification and pursuit of necessary services for these children.

To help understand the role of comorbidity in ASD, it will be useful to compare the patterns and prevalence of comorbid conditions in children with ASD from a non-clinical group with those from a clinical group. Because comorbid conditions are often as impairing as ASD symptoms themselves, it is important to identify comorbid psychopathology that can be treated to improve emotional and behavioral health of children with ASD. This will reduce suffering and functional disruptions as well as improve their quality of life. To date, there are no studies that compare the clinical characteristics of children with ASD and comorbid conditions in both clinical and non-clinical populations.

Compared to a single, narrow phenotype assessment to make a single diagnosis, broad spectrum measures are more efficient when used for the simultaneous assessment of various comorbid conditions (Nebel-Schwalm & Matson, 2008). The Behavioral Assessment System for Children, Second Edition (BASC-2; Reynolds & Kamphaus, 2004) is one such instrument in that it allows for the assessment of multiple types of developmental psychopathology, with adaptive function of children. It is effective and efficient for large scale and epidemiologic studies because it is completed by caregivers (usually parents) and teachers instead of by clinicians. There have been a few studies comparing BASC-2 profiles in children with ASD to those of typically developing children. Mahan and Matson (2011) and Hass, Brown, Brady, and Johnson (2012) reported that children with ASD scored higher than typically developing children on almost all the clinical scales and composites while they obtained significantly lower scores on BASC-2 adaptive scales and the Adaptive Skills composite. Similar results were found by Knoll (2008) and Volker et al. (2010) in their studies of children with HFASD. Knoll (2008) also observed differences in the BASC-2 profiles of children with HFASD when compared to those with low-functioning level ASD (LFASD); the LFASD group had lower levels of adaptive function than did the HFASD group whereas the HFASD group had more behavioral and/or emotional problems than the LFASD group. Additionally, Ooi et al. (2011) used the Child Behavior Checklist (Achenbach, 1991) to compare behavior problems of children with ASD to those of children in four contrast groups, including the clinically referred but previously undiagnosed group. Results revealed that children with ASD had more internalizing, emotional, and social problems, but fewer externalizing problems (i.e., rule-breaking behavior and aggressive behavior), than did the undiagnosed group.

However, previous findings must be interpreted with caution due to several methodological limitations. The gold-standard diagnostic assessment for ASD includes the use of standardized instruments designed to assess multiple domains of child functioning and behavior. These include the Autism Diagnostic Observation Schedule (ADOS; Lord, Rutter, DiLavore, & Risi, 2001), the Autism Diagnostic Interview-Revised (ADI-R; Rutter, Le Couteur, & Lord, 2003), and cognitive testing. None of

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