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Comorbid psychopathology factor structure on the Baby and Infant Screen for Children with aUtIsm Traits-Part 2 (BISCUIT-Part 2)

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ABSTRACT

Autism Spectrum Disorders (ASD) is a topic receiving great attention from researchers and clinicians in the field. However, many of these studies focus on children or adults, with research on infants and toddlers evincing ASD being virtually non-existent. Even more scant is information pertaining to the assessment of symptoms of comorbid psychopathology in this young population. Nonetheless, it is essential to identify comorbid conditions in addition to the symptoms associated with the core features of ASD. Building on the effectiveness of early intervention with children with ASD, comprehensive evaluations and individualized treatment goals are necessary and may enhance treatment efficacy. *The Baby and Infant Screen for Children with aUtIsm Traits-Part 2* (BISCUIT-Part 2) is a new assessment, specifically designed to examine symptoms of psychopathology in infants and toddlers with ASD. The purpose of this study was twofold. First, the factor structure of the BISCUIT-Part 2 was established. Second, group differences in the endorsement of symptoms of psychopathology were examined between infants and toddlers with and without ASD.

Autism and Pervasive Developmental Disorders-Not Otherwise Specified (PDD-NOS) are the most frequently identified autism spectrum disorders (ASD) in early childhood (Johnson & Myers, 2007; Matson, 2007; Matson & Boisjoli, 2007; Matson, Nebel-Schwalm, & Matson, 2007). The great amount of interest that exists with respect to early diagnosis of ASD in general is due to the recognition by parents that there are developmental differences in these children compared to typically developing infants at a very young age (Lord & Luyster, 2006). Additionally, the success of early intervention programs with young children with ASD has heightened the importance of an accurate early diagnosis (Matson & Smith, 2007).

Much of the literature to date has focused on the core features of ASD including communication, rituals, stereotypes, and social skills (Kern et al., 2007; Matson, LeBlanc, & Weinheimer, 1999; Matson, Matson, & Rivet, 2007; Njardvik, Matson, & Cherry, 1999; Waterhouse et al., 1996). However, increasingly, there is recognition that co-occurring phenomenon such as challenging behaviors (Dawson, Matson, & Cherry, 1998; Matson, Dixon, & Matson, 2005; Matson et al., 1997, Paclawskyj, Matson, Bamburg, & Baglio, 1997) and comorbid psychopathology (Gadow, DeVincent, Pomeroy, & Azizian, 2004; Ghaziuddin, Tsai, & Ghaziuddin, 1992a) warrant investigation as well. Early detection then, is not just an issue of establishing an ASD diagnosis. Rather, severity of diagnosis and qualitative and quantitative measures of co-occurring disorders is not only advisable but also essential.

The average age of diagnosis for ASD in practice is roughly five years old (Kern et al., 2007). However, researchers and clinicians recognize that diagnosis of children at 18–36 months is possible and optimal (Matson, Wilkins, & Gonzalez, 2008).

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Efforts are underway to develop effective means of early detection and diagnosis of ASD (Filipek et al., 1999). Equally critical is the need to identify co-occurring phenomenon, given the heavy focus on early intensive interventions. Once identified, these co-occurring disorders could also be systematically included as goals in therapy. To date, little has been done in the area of co-occurring psychopathology in ASD (Ghaziuddin et al., 1992a; Matson & Nebel-Schwalm, 2007). Even more striking is the lack of studies with respect to this topic in very young children.

The purpose of this study was to establish the factor structure of the comorbid psychopathology scale of the *Baby and Infant Screen for Children with aUtIsm Traits* (BISCUIT). Secondly, differences between infants and toddlers with and without ASD were evaluated on these factors.

1. Study 1

1.1. Purpose

The purpose of Study 1 was to identify the factor structure of the BISCUIT-Part 2 and evaluate the internal consistency of each factor.

2. Method

2.1. Participants

The 270 participants included in this study were all enrolled in an early intervention program funded by the State of Louisiana. The early intervention program serves children who have a medical condition that is likely to result in a developmental delay or the child is currently experiencing a developmental delay. Ages of the participants ranged from 17 to 37 months ($M = 27.33$, SD = 4.93). All participants had a diagnosis of either Autistic Disorder or PDD-NOS. Diagnoses were assigned by a licensed Ph.D. level clinical psychologist, based on clinical judgment and information provided by the DSM-IV-TR algorithm for Autistic Disorder and description of PDD-NOS, and M-CHAT scores, and developmental profile of the *Battelle Developmental Inventory-Second Edition*. The psychologist was blind to the scores on the BISCUIT-Part 1.

Seventy-two point two percent of the sample was male. Ethnic identification of the participants was 37.8% African American, 49.3% Caucasian, 1.9% Hispanic, 3.7% identified as 'other', and the ethnicity of 7.4% was not reported. Additional diagnoses included: asthma (5.6%), Down's syndrome (1.9%), cerebral palsy (3.3%), seizure disorder (3.3%), and epilepsy (1.1%). Less common diagnoses (0.4%) within this sample included hydrocephaly, diabetes, genesis corpus callosum, glactocemia, spina bifida, traumatic brain injury, Usher's Syndrome, fetal alcohol syndrome, hypoplastic left heart syndrome, and history of meningitis. Fifty one point nine percent of the sample reported no additional diagnoses.

2.2. Test administration

Interviews were conducted with the parents/guardians of the participants. Qualified personnel employed to provide services for the State of Louisiana's EarlySteps program conducted the interviews. (EarlySteps is Louisiana's Early Intervention System under the Individuals with Disabilities Education Act, Part C, which provides services to infants and toddlers and their families from birth to 36 months. Children qualify if they have a medical condition likely to result in a developmental delay, or have developmental delays.) Assessor's degrees ranged from bachelor to doctoral level in the following disciplines: occupational therapy, physical therapy, social work, speech-language pathology, or psychology. All assessors were either licensed or certified in their respective disciplines. Each assessor participated in a full-day training on the administration of the measure used in this study, as well as on background information on ASD, and scale development. The BISCUIT-Part 2 was administered as part of a larger battery that assesses symptoms of ASD, occurrence of problem behaviors, and the child's development. The assessor read the measures to the parent/guardian, while the informant read along. Interviews were conducted in a quiet area, free from distraction. Children were routinely present with their parents during the interview allowing for direct observation of the child by the interviewer.

2.3. Measure

Baby and Infant Screen for Children with aUtIsm Traits (BISCUIT). The BISCUIT is a new battery developed to assess infants and toddlers between the ages of 17 and 37 months. The BISCUIT was constructed using methods outlined in the literature on scale development (Crocker & Algina, 1986; DeVellis, 1991). A review of the literature, and DSM-IV-TR and ICD-10 diagnostic criteria was conducted. Next, the item pool was generated and revised following review by expert psychologists. Pilot-tests were conducted with persons unfamiliar with mental health terminology to ensure comprehension. Lastly, reliability analyses were conducted on each component of the battery. Items with low reliability and item endorsement were removed from the measure (Matson et al., 2008). The first component of the battery, Part 1, assesses for symptoms of autism and PDD-NOS. The second component of the battery, Part 2, assesses for co-occurring mental health conditions. Lastly, Part-3 assesses for challenging behaviors such as aggression and self-injury.

The BISCUIT-Part 2 assesses for comorbid mental health conditions that may be common to children with ASD. The BISCUIT-Part 2 contains 65 items that encompass symptoms of the following mental health conditions: attention deficit/