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# Reliability and item content of the Baby and Infant Screen for Children with aUtism Traits (BISCUIT): Parts 1–3

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## ABSTRACT

The success of early intervention programs has in large part spurred increasing emphasis on identifying children with autism and Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS) at the earliest possible ages. National and international professional groups have called for early screening and diagnosis, yet the technology to effectively meet these goals are insufficient. The Checklist for Autism in Toddlers (CHAT) and its variants is the only scale with acceptable psychometrics at present, but measures autism only. In this paper we describe a new measure, the Baby and Infant Screen for Children with aUtism Traits (BISCUIT), which is geared toward identifying young children with autism and PDD-NOS, and which also assesses for comorbid psychopathology and challenging behaviors. This initial study describes item selection and reliability for all three parts of the measure, which were individually administered to the parents of 276 children ages 17–37 months identified as at risk for developmental and/or physical disabilities.

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## 1. Introduction

Autism Spectrum Disorders (ASD) are a set of neurodevelopmental conditions characterized by deficits in communication, social skills, and rituals and stereotypies (Matson, 2007a; Matson & Boisjoli, 2007; Matson & Wilkins, 2008a; Njardvik, Matson, & Cherry, 1999; Paclawskyj, Rush, Matson,

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& Cherry, 1999). One of the topics that has generated the greatest interest among parents, the popular press, and researchers in ASD is early detection and diagnosis (Lord & Luyster, 2006; Matson, Wilkins, & González, 2008). This trend, in large part, is bolstered by the fact that early intervention for children as young as 18 months to 2 years may be advisable (Ben-Itzhak, Lahat, Burgin, & Zachor, 2008; Matson & Smith, 2008). Despite this fact, no biological or genetic tests for the condition have been developed (Theoharides, Doyle, Francis, Conti, & Kalogeromitros, 2008). Therefore, the emphasis has been most fruitful in the area of scales which can be used to assess developmental skill sets and whether they deviate from the norm (Matson et al., 1996; Matson, Smiroldo, & Bamburg, 1998).

To date, only one methodologically sound measure for early identification has been developed specific to early detection. This measure, the Checklist for Autism in Toddlers (CHAT; Baron-Cohen, Allen, & Gillberg, 1992), has undergone additional revisions: the Modified Checklist for Autism in Toddlers (M-CHAT; Robins, Fein, Barton, & Green, 2001) and the Quantitative Checklist for Autism in Toddlers (Q-CHAT; Allison et al., *in press*), which is in development. This measure has promise but is limited to autism and is a screening instrument not aimed at aiding in diagnosis.

More recently, the Autism Spectrum Disorders Child Battery has been developed. The purposes of this measure are to aid in the diagnosis of Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS), autism, and Asperger's syndrome. Additionally, it was devised to assess comorbid psychopathology and challenging behaviors. Good reliability and validity have been reported (Matson, González, & Rivet, 2008; Matson, González, Wilkins, & Rivet, 2008 *press*; Matson & Wilkins, 2008b).

The purpose of the present study was to extend this scale by using the same diagnostic categories and to test these items and overall content with very young children. This version of the scales was dubbed the Baby and Infant Screen for Children with aUtism Traits (BISCUIT). A biscuit is defined as a small, sweet cake. Small and sweet are apt descriptions of the young children assessed. This study was aimed at establishing the reliability of all three parts of the BISCUIT (diagnostic, comorbid, challenging behaviors) with a sample of "at risk" children ages 13–37 months.

## 2. Method

### 2.1. Participants

The sample consisted of 276 children ranging in age from 17 to 37 months ( $M = 26.83$ ,  $S.D. = 5.27$ ). There were 187 males and 89 females. The ethnic breakdown of the sample was as follows: 53.4% Caucasian, 39.8% African American, 1.7% Hispanic, and 5.1% other ethnicity. These children were all enrolled in a state-funded program that provides services to infants and toddlers who either have a developmental delay or have a medical condition that is likely to result in a developmental delay. Medical diagnoses of children in the sample included cerebral palsy, epilepsy, infant diabetes, arthrogryposis, neurofibromatosis, bronchial-pulmonary dysplasia, tracheomalasia, deafness, hypotonia, blindness, hypoplastic left heart syndrome, spina bifida, asthma, and tubular sclerosis. Other diagnoses indicated included autism, developmental delay, Klinefelter's syndrome, Down's syndrome, and mild intellectual disability. No diagnosis was indicated for 140 of the children tested.

### 2.2. Testers and test administration

Persons who conducted the one-to-one parent assessment interview and who conducted observations of the child held a degree and certification or licensure within a field that qualified them to provide services for the State of Louisiana's EarlySteps program. (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.) The degrees for testers ranged from bachelor's degrees in early childhood education to doctoral degrees in psychology. Certifications and licensures included the disciplines/areas of occupational therapy, physical therapy, special instruction, social work, speech-language pathology, and psychology. Approximately 175 testers attended a full day workshop provided by the authors, which included background information on ASD and the scales described in this study. Additionally, practice

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