



The effect of cognitive skills and autism spectrum disorder on stereotyped behaviors in infants and toddlers



Paige E. Cervantes^{*}, Johnny L. Matson, Lindsey W. Williams, Jina Jang

Louisiana State University, United States

ARTICLE INFO

Article history:

Received 3 January 2014

Accepted 25 January 2014

Keywords:

ASD

Stereotypies

BISCUIT

BDI-2

Cognitive skills

ABSTRACT

Stereotyped behaviors are prominent in both the ASD and ID populations; stereotypies can impede social skill acquisition, interfere with learning, and adversely affect an individual's quality of life. The current study explored the effect of cognitive skills and autism spectrum disorder (ASD) on the rate of stereotypies in 2019 children aged 17–39 months. Cognitive abilities were assessed using the cognitive developmental quotient (DQ) on the *Battelle Developmental Inventory, Second Edition (BDI-2)*; two levels of cognitive skill were used: (1) low (cognitive DQ less than or equal to 70), and (2) typical (cognitive DQ greater than 70). Stereotypies were examined utilizing the *Baby and Infant Screen for Children with aUtism Traits, Part 3 (BISCUIT-Part 3)*. Children with ASD were found to have greater rates of overall stereotyped behaviors compared to children with atypical development, regardless of cognitive level; however, children with ASD and typical cognitive ability evinced the highest rate of stereotypies. An examination of specific stereotyped behaviors (i.e., unusual play with objects, repeated and unusual vocalizations, repeated and unusual body movements) revealed disparate results. Research and clinical implications regarding these findings are discussed.

© 2014 Published by Elsevier Ltd.

1. Introduction

The *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)* identifies stereotypies as repetitive, apparently purposeless motor behavior that seems driven; when identified as a clinical concern, stereotypic behaviors interfere with daily functioning and may or may not cause self-injury (Matson & LoVullo, 2009; Reed, Hirst, & Hyman, 2012). Simple stereotypies, such as body rocking, are common in typically developing infants and toddlers and are considered a normal part of development. However, some stereotypies may persist into adulthood such as hair twirling or finger drumming. These behaviors are often exacerbated by stress or boredom (Goldman et al., 2009).

Stereotypies may become the focus of clinical attention when the behaviors cause injury or persist with great frequency into later developmental periods (Matson, Kiely, & Bamburg, 1997). Stereotypies are differentiated from motor abnormalities such as tics by virtue of the ability for stereotypies to be voluntarily suppressible, at least for a time (Goldman et al., 2009). Examples of common stereotypies in individuals with developmental disabilities include hand

^{*} Corresponding author at: Department of Psychology, Louisiana State University, Baton Rouge, LA 70803, United States. Tel.: +1 225 578 1494. E-mail address: pcerva2@lsu.edu (P.E. Cervantes).

flapping, body rocking, spinning objects, finger waving, repetition of words or non-functional sounds, and unprovoked giggling or yelling (Duncan, Matson, Bamburg, Cherry, & Buckley, 1999; MacDonald et al., 2007; Singer, 2009). Even when stereotypies consist of seemingly harmless behaviors, stereotypies may command a great deal of the individual's attention and impede social inclusion, developmentally normative opportunities, and the learning process (MacDonald et al., 2007; Matson & Nebel-Schwalm, 2007). This condition may be particularly problematic for individuals with disorders that put them at increased risk of delays in intellectual, mental health, or adaptive functioning (Matson, Dempsey, & Fodstad, 2009a; Matson, Rivet, Fodstad, Dempsey, & Boisjoli, 2009; Smith & Matson, 2010a, 2010b, 2010c).

Restricted, repetitive patterns of behavior, interests, or activities are a core feature of autism spectrum disorder (ASD), and stereotyped motor movements or speech are commonly associated with the disorder (Matson & Wilkins, 2008b). However, stereotypies are frequently seen within the context of other disorders as well. Increased risk factors for stereotypic movement disorders include neurogenetic factors (e.g., Lesch–Nyhan syndrome) as well as environmental factors including social isolation or an environment with insufficient stimulation (Singer, 2010). Stereotypies are common in those with intellectual disabilities (ID) due to a variety of etiologies (Matson & Dempsey, 2008; Matson & Rivet, 2008). Carminati, Gerber, and Constantin (2005) found that stereotypic behaviors were among the most commonly reported problem behaviors in a day program setting for individuals with intellectual disabilities. Results of some studies have shown that children with an ASD exhibit even more motor stereotypies than atypically developing children without ASD or individuals with ID only (Carcani-Rathwell, Rab-Hasketh, & Santosh, 2006; Goldman et al., 2009; Matson, Cooper, Malone, & Moskow, 2008; Matson & Wilkins, 2008a).

ASD and ID commonly co-occur, with estimates of ID in individuals with ASD ranging from about 50–70% (Artigas-Pallarés, Rigau-Ratera, & García-Nonell, 2007; LaMalfa, Lassi, Bertelli, Salvini, & Placidi, 2004). Among individuals with ID, estimates of ASD vary widely from 4%–40% (Matson & Shoemaker, 2009). Researchers have found that stereotypies are correlated with severity of autism symptoms (Bodfish, Symons, Parker, & Lewis, 2000; Campbell et al., 1990), and with greater intellectual disability (Bishop, Richler, & Lord, 2006; Militerni, Bravaccio, Falco, Fico, & Palermo, 2002). In comparing restricted, repetitive behavior (RRB) differences between individuals with ASD and varying levels of cognitive abilities, some researchers suggest that intelligence may be significantly related to the type of RRBs present (Gabriels, Cuccaro, Hill, Ivers, & Goldson, 2005; Goldman et al., 2009; Rapin & Katzman, 1998; Turner, 1999). 'High level' RRBs are defined as those behaviors that are more complex and thus, demand greater ability; 'high level' RRBs are found more often in children with ASD and typical cognitive skills and include unusual attachment to objects, repetitive speech, and circumscribed interests (Gabriels et al., 2005). 'Low level' RRBs are less sophisticated and require less skill. Researchers have indicated this level of RRBs is observed more often in children with ASD and low intellectual functioning and include sensory and motor stereotypies and self-injurious behaviors (Gabriels et al., 2005; Goldman et al., 2009).

Of note, the stereotyped behaviors and RRBs characteristic of ASD can be observed and identified as early as infancy (Fodstad, Rojahn, & Matson, 2012; Matson, Dempsey, & Fodstad, 2009b). Researchers have found that, as early as 10 months of age, parents of children with ASD report significantly higher rates of RRBs compared to parents of typically developing peers (Werner, Dawson, Munson, & Osterling, 2005). RRBs in infants and toddlers with ASD have also been found to worsen in frequency and presentation into childhood (Guthrie, Swineford, Nottke, & Wetherby, 2013). Though some people experience a decrease in RRB symptoms over the lifespan, a majority of individuals with ASD demonstrate long term impairment (Seltzer, Shattuck, Abbeduto, & Greenberg, 2004).

With regard to stereotypies, little research has been conducted on differences between individuals with ASD and varying levels of cognitive abilities, and how these groups may compare to atypically developing individuals without ASD. The present study sought to explore rates of stereotyped behaviors in infants and toddlers with ASD and with atypical development demonstrating different levels of cognitive skills. Comparisons of overall rate of stereotypies as well as rates of specific stereotyped behaviors such as unusual play with objects, unusual and repetitive vocalizations, and unusual and repetitive body movements were examined.

2. Method

2.1. Participants

Two thousand, nineteen infants and toddlers between the ages of 17 and 39 months ($M = 25.65$, $SD = 4.65$) were included in the study. The total sample consisted of 71.20% males and 28.80% females. 49.62% of the total participants were Caucasian ($n = 1101$), 39.30% were African American ($n = 872$), 2.25% were Hispanic ($n = 50$), and 8.83% were of other or unspecified ethnicity ($n = 196$). This sample was obtained via EarlySteps, Louisiana's early intervention program under the Individuals with Disabilities Education Act, Part C, which provides services to infants and toddlers from birth to 3 years. A licensed psychologist with over 30 years of experience assigned ASD diagnoses using a variety of measures including the *Modified Checklist for Autism in Toddlers (M-CHAT)*; Robins, Fein, & Barton, 1999), the *Battelle Developmental Inventory, Second Edition (BDI-2)*; Newborg, 2005), the *DSM-V* criteria, and clinical judgment.

Participants were divided into four groups: an ASD group with typical cognitive ability ($n = 194$), an ASD group with low cognitive ability ($n = 131$), an atypical group with typical cognitive ability ($n = 1694$), and an atypical group with low cognitive ability ($n = 200$). Atypical groups did not meet criteria for ASD but were atypically developing (e.g., global developmental delay, cerebral palsy, Down syndrome, premature birth, seizure disorder, hydrocephalus). Because measures

Download English Version:

<https://daneshyari.com/en/article/10317179>

Download Persian Version:

<https://daneshyari.com/article/10317179>

[Daneshyari.com](https://daneshyari.com)