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Communication deficits in infants and toddlers with developmental disabilities

Megan A. Hattier, Johnny L. Matson *, Megan Sipes, Nicole Turygin

Louisiana State University, Baton Rouge, LA 70803, USA

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ABSTRACT

Research that focuses on detecting and assessing the presence of communication impairments in children with developmental disabilities exists. However, more research is needed which compares these deficits across individuals with various developmental disabilities. This information could inform the assessment process and treatment programs. Therefore, the purpose of the current study was to examine communication deficits in toddlers who were diagnosed with Down syndrome, Cerebral Palsy (CP), had a history of seizures or a seizure disorder, and who were born premature. A total of 140 toddlers 17–35 months of age met inclusion criteria for the study. Those diagnosed with CP evinced significantly fewer communication impairments on the *Baby and Infant Screen for aUtIsm Traits-Part 1* (*BISCUIT-Part 1*) than children with Down syndrome and children with a history of seizures or seizure disorder. No significant differences were found on the communication subscale for the comparison of those with CP and those born prematurely. Children diagnosed with CP had fewer endorsements, indicating less impairment, on all six items of the Communication subscale of the *BISCUIT-Part 1* when compared to the three other diagnostic groups. Implications of these results are discussed for children with differing handicaps.

Developmental disorders and conditions have been shown to affect a variety of aspects of a child's progress including adaptive skills, social skills, and poor adjustment (Berg et al., 2004; Dixon, Kurtz, & Chin, 2008; Eriksson, Westerlund, & Miniscalco, 2010; Fodstad, Rojahn, & Matson, 2010; Matson, Hess, Sipes, & Horovitz, 2010; Matson, Mahan, Hess, & Fodstad, 2010; Matson, Mahan, Hess, Fodstad, & Neal, 2010; Smith & Matson, 2010a). In many cases, these conditions (e.g., Cerebral Palsy [CP] and Down syndrome) and their effects are lifelong (Sutherland, Couch, & Iacono, 2002). Other conditions such as prematurity and history of seizures or seizure disorder can also lead to long term negative effects on development in young children (Berg et al., 2004; Lee, Yeatman, Luna, & Feldman, 2011). One large area of concern in children with these disorders and conditions is communicative ability as impairments in communication can lead to a variety of other problems in areas such as challenging behavior and social skill development (Kuhn & Matson, 2004; Matson & Mayville, 2001; Matson, Dixon, & Matson, 2005; Matson, Minshawi, Gonzalez, & Mayville, 2006; Matson et al., 2011; Smith & Matson, 2010b; Sturmey, Laud, Cooper, Matson, & Fodstad, 2010a, 2010b; Weeden, Mahoney, & Poling, 2010). Unlike certain developmental disorders, such as autism spectrum disorders, communication is not one of the core areas of impairment in these former disorders but is a secondary source of problems. Nonetheless, it is still of concern for parents and caregivers (Horovitz & Matson, 2010; Knox, 2008; Matson & Neal, 2010; Matson, Neal, Fodstad, Hess, Mahan, Rivet, 2010).

* Corresponding author at: Department of Psychology, Louisiana State University, Baton Rouge, LA 70803, USA.
E-mail address: johnmatson@aol.com (J.L. Matson).

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Each of the disorders examined here has been studied individually to examine the types and severity of communication impairments, and to a lesser extent, these deficits have been examined in young children. For children with CP, delays in speech as well as difficulties with intelligible speech are often due to motor problems (Gerenser & Forman, 2007; Pennington, 2008). Even in toddlers aged 18–30 months of age, those with more severe CP showed more severe impairments in social communication (Whittingham, Fahey, Rawicki, & Boyd, 2010). Young children with a history of seizures or seizure disorders also exhibit communication impairments as assessed by different adaptive functioning measures (Berg et al., 2004; Matson, Hess, et al., 2010). These communication and language impairments often become more severe with more frequent and long lasting seizures. Characterized by a chromosomal abnormality which results in delayed psychomotor development, young children with Down syndrome typically have communication impairments both in receptive and expressive domains (Roizen & Patterson, 2003). While children often exhibit abnormalities in language at very young ages, their impairments become even more extensive with age (Miller, 1992). Similar to CP, seizures/seizure disorder, and Down syndrome, children born prematurely also often have communication impairments in the early years of their lives (Matson, Hess, et al., 2010). Casiro et al. (1990), for example, found that approximately 40% of preterm infants later exhibited significant language delays. This was much higher than what was found in typically developing control children.

While researchers have shown that communication impairments are evident in young children with CP, seizures/seizure disorder, Down syndrome, and premature birth, it would also be useful to compare communication impairments among these developmental disorders. Some researchers have already begun to compare disorders such as these on other variables. For example, Matson, Hess, et al. (2010) compared children with Down syndrome, global developmental delay, and premature birth using a developmental inventory. Their findings showed that premature children did not have impairments as significant on developmental quotient compared to children with Down syndrome and global developmental delay (which did not differ significantly from one another). Upon closer inspection, those with Down syndrome and global developmental delay exhibited significantly greater impairments on the personal-social and motor domains.

A similar study compared atypically developing children with the diagnoses of Down syndrome, developmental delay, prematurity, CP, and seizure disorder in regard to the presence of challenging behaviors, such as aggression and self-injurious behavior (Sipes, Rojahn, Turygin, Matson, & Tureck, 2011). No significant differences were found for the three types of behaviors examined, aggressive/destructive, stereotypic, and self-injury. The authors conclude that differences among these groups may not be evident until a later age.

Young children with developmental disabilities, such as CP, Down syndrome, seizures/seizure disorder, and premature birth, exhibit communication and language deficits. Other researchers have also shown group differences on variables such as developmental skills, such as personal-social and motor abilities (Matson, Hess, et al., 2010). However, these atypically developing infants have not been assessed on communication deficits. More knowledge in this area would aid in establishing, more effective treatment and planning. The purpose of the current study was to compare several groups of developmentally disabled infants and toddlers. For the present study groups of children with CP, history of seizures or seizure disorder, Down syndrome, and premature birth were studied with respect to communication deficits.

1. Method

1.1. Participants

The 139 participants were enrolled in EarlySteps, a testing and early intervention program funded by the State of Louisiana under the Individuals with Disabilities Education Act, Part C. This program serves children who have a developmental delay or a medical condition likely to result in a developmental delay as initially determined by the family pediatrician or neonatologist. The age of the participants ranged from 17 to 35 months (M = 25.04, SD = 4.53). All participants had a diagnosis of either Down syndrome, Cerebral Palsy, seizure disorder or they had a history of seizures, or were premature as an infant. Diagnoses were obtained through direct observation and parent report. A licensed psychologist with over 30 years of experience working with children and adults with developmental disabilities determined all participants as not having an ASD but were atypically developing. The information for these decisions was obtained from several sources including scores on the *Battelle Developmental Inventory, Second Edition* (*BDI-2*; Newborg, 2005) and the *Modified Checklist for Autism in Toddlers* (*M-CHAT*; Charman et al., 2001), criteria from the *DSM-IV-TR* (APA, 2000), and clinical judgment.

Sixty-two percent of the sample was male, and 37% was female. Fourty-three percent of participants identified as black, 47.5% identified as white, 1.4% identified as Hispanic, and 7.9% of participants identified as belonging to another ethnic group or did not report their ethnicity. *A priori* analyses found no significant differences between diagnostic groups on demographic variables of age, gender, and ethnicity; thus, these variables were not covaried in the following analyses. Each individual was included in only one of the four diagnostic groups; no participant was eligible for inclusion in multiple diagnostic groups. Demographic information for each of these groups can be found in Table 1.

1.2. Measures

Baby and Infant Screen for Children with aUtIsm Traits-Part 1 (*BISCUIT-Part 1*; Matson, Boisjoli, Hess, & Wilkins, 2010). The *BISCUIT-Part 1* was developed to assess infants and toddlers between the ages of 17 and 37 months for symptoms of ASD. The *BISCUIT* is a three part informant-based assessment tool used to assess symptoms of ASD, comorbid psychopathology, and