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Food selectivity in children with and without an autism spectrum disorder: Investigation of diagnosis and age



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ABSTRACT

Feeding problems are common in children with autism spectrum disorders (ASDs), with food selectivity being the most frequently reported. Selectivity based on type and/or texture of food is of concern in those with ASD. Variations in symptom presentation of food selectivity in children with different autism spectrum diagnoses across childhood have not often been investigated. Parent-report of food selectivity was examined in 525 children age 2–18 years diagnosed with autistic disorder, PDD-NOS, Asperger's disorder, atypical development, and typical development using information garnered from the *Autism Spectrum Disorder-Comorbidity for Children (ASD-CC)*, a tool to assess emotional issues and comorbid psychopathology. Individuals with an ASD were reported to have significantly more food selectivity than both the atypically developing group and the typically developing group. In addition, the ASD groups, when looked at together, showed a decrease in food selectivity across childhood with significant decrease in the Asperger's disorder group.

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1. Introduction

The three most common autism spectrum disorders (ASDs) are autistic disorder, Asperger's disorder, and pervasive developmental disorder-not otherwise specified (PDD-NOS; Chakrabarti & Fombonne, 2001; Fernell & Gillberg, 2010; Lugnegård, Hallerbäck, & Gillberg, 2011; Matson & Boisjoli, 2007; Matson, Fodstad, & Dempsey, 2009; Matson, LoVullo, Rivet, & Boisjoli, 2009; Matson, Wilkins, et al., 2009; Samyn, Roeyers, & Bijttebier, 2011). ASDs are a group of neurodevelopmental disorders characterized by deficits in three main areas including communication, socialization, and repetitive or stereotyped patterns of behavior (Constantino et al., 2003; Fodstad, Matson, Hess, & Neal, 2009; Inglese & Elder, 2009; Kozłowski, Matson, & Belva, 2012; Kozłowski, Matson, Belva, & Rieske, 2012; Matson & Wilkins, 2008a; Matson, Dempsey, LoVullo, & Wilkins, 2008; Matson, Wilkins, & Gonzalez, 2008; Vanvuchelen, Roeyers, & De Weerd, 2011; White, Keoing, & Scahill, 2007; Wing, Gould, & Gillberg, 2011). Though not a diagnostic feature of ASDs, problems with feeding are prevalent in those diagnosed on the autism spectrum (Cermak, Curtin, & Bandini, 2010; Fodstad & Matson, 2008; LoVullo & Matson, 2009; Matson, Dempsey, et al., 2008; Matson, Wilkins, et al., 2008; Schreck, Williams, & Smith, 2004; Smith & Matson, 2010).

Individuals with ASD often have feeding problems such as restricted food intake and selectivity based on type or texture of food (Matson & Fodstad, 2009; Matson, Hattier, & Belva, 2012). In addition, parents report that children with ASDs have difficulties including food refusal, insistence on sameness while eating (e.g., use of specific utensils), and an increase in problem behavior at mealtime (Gal, Hardal-Nasser, & Engel-Yeger, 2011; Levin & Carr, 2001; Schreck et al., 2004). Food selectivity, or being extremely particular with regard to what food is accepted, is the most commonly observed feeding

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problem in individuals with an ASD and can lead to many of the problems first mentioned (Bandini et al., 2010; Field, Garland, & Williams, 2003; Klintwall et al., 2011; Legge, 2002).

Food selectivity is based on a specific type or texture of food (Field et al., 2003). Field and colleagues defined selectivity as the refusal to eat developmentally appropriate food. Selectivity was characterized by eating a small range of food lacking in nutrition. This latter problem was the most common. Food selectivity was found to be more prevalent in the ASD sample than food refusal (i.e., not consuming enough to meet caloric/nutritional needs) and other feeding problems (i.e., oral motor delays and dysphagia; Field et al., 2003). Matson, Fodstad, et al. (2009), Matson, LoVullo, et al. (2009), Matson, Wilkins, et al. (2009) reported that 75.89% of children with ASD exhibit food selectivity. Other researchers have found similar rates of food selectivity in children with ASD (Schreck & Williams, 2006).

Restricted interests and repetitive patterns of behavior are commonly believed to contribute to food selectivity (Matson, Fodstad, et al., 2009; Matson, LoVullo, et al., 2009; Matson, Wilkins, et al., 2009). Some researchers postulate a relationship between the sensory system and food selectivity (Cermak et al., 2010). Other investigators have not found relationships between sensory impairments or restrictive/repetitive behavior, but have found relationships between selectivity and the family's eating preferences (Schreck & Williams, 2006). Matson and colleagues suggest that individualized assessment of feeding problems should be undertaken to examine the function of the specific feeding problem (2005).

Food selectivity in individuals with an ASD is important to study not only because of the high prevalence of the problem within the population, but also because of possible nutritional deficiencies secondary to consuming such a restricted variety of foods over time (Cermak et al., 2010; Pineles, Avery, & Liu, 2010; Seiverling, Hendy, & Williams, 2011). Nutritional deficits are often cited as a reason for treatment of feeding problems (Bandini et al., 2010; Cermak et al., 2010). Related problems include constipation, possibly as a result of food selectivity and poor diet, which may contribute to unwillingness to try new foods as well as lower appetite (Field et al., 2003). Stress on caregivers resulting from feeding difficulties also makes the issue of food selectivity in those with ASD a concern, especially considering that parental stress is high in general for parents of a child with an ASD (Kodak & Piazza, 2008; Moh & Magiati, 2012).

Although researchers describe food selectivity in those with ASD as persisting into adulthood (Fodstad & Matson, 2008; Legge, 2002), there is a paucity of literature with regard to descriptions of varying behavioral presentations across the lifespan. Further, empirical study is necessary to more fully understand food selectivity, how food selectivity may present across childhood, and differences within the heterogeneous condition of ASD. The aim of the present study was to describe food selectivity in children 2–18 years of age with different ASDs compared to children without an ASD. Previously, researchers investigated a variety of feeding problems in a subset of the sample used in the present study (Matson, Fodstad, et al., 2009; Matson, LoVullo, et al., 2009; Matson, Wilkins, et al., 2009). Feeding problems included preferences for textures or smells, over-eating, under-eating, poor appetite, food selectivity, weight gain/loss, pica, and eating too quickly. The present study extends their investigation of feeding difficulty among persons with ASD by focusing on one aspect of feeding difficulty only (i.e., food selectivity), using an updated sample, detailing differences across different ages of children, and including an additional group diagnosed with Asperger's disorder.

2. Method

2.1. Participants

Study participants included 525 children and adolescents, 2–18 years of age ($M = 8.36$, $SD = 3.59$). Of these participants, 69.9% were male. Additionally, the majority of the participants were Caucasian (79.2%). The original data sample consisted of 671 participants from 16 states, recruited from schools, outpatient clinics, parent advocacy groups, and family support groups. Of the original 671 participants, 146 were excluded due to lack of crucial data (e.g., missing diagnostic category, missing ASD-DC data) or errors in measure ratings. Parents or legal guardians of the participants served as informants for questionnaires and all diagnoses were made by a licensed clinical psychologist. Graduate students were available to answer questions or provide clarifications regarding measures as necessary, with support being in person in some cases, and when assessments were given at clinics out of state, this support was provided via telephone contact. Diagnoses were made by graduate students and confirmed by a licensed clinical psychologist with over 30 years of experience in the field. A comprehensive battery was used for diagnosing which included a history of development and medical concerns, clinical interview with parents, behavioral observation, rating scales, and clinical judgment. Diagnoses were in accordance with the text revisions of the fourth edition of the Diagnostic and Statistical Manual (APA, 2000).

The participants were divided into five groups based on clinical diagnoses: autistic disorder ($n = 127$), PDD-NOS ($n = 82$), Asperger's disorder ($n = 60$), atypical development ($n = 107$), and typical development ($n = 149$). The atypical development group was included as a control group and consisted of children exhibiting developmental delays or clinically significant psychopathology that do not meet criteria for an ASD. Participants in the typical development group had no clinical diagnoses. Demographic characteristics for participants included in each group are presented in Table 1.

2.2. Measures

Autism Spectrum Disorder-Comorbidity for Children. The ASD-CC was used to assess for emotional issues and comorbid psychopathologies that commonly co-occur with ASD (Matson & González, 2007). It is one portion of a comprehensive

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