

Advances on Eating Behaviors in Children with Autistic Trait

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Abstract: The objective of this study is review existing literature concerning the possible association between autistic trait and eating behaviors in children. We found that autistic trait at early age predicted the diet quality in later, and eating behaviors at early age predicted the autistic trait in later. Combining the content of existing research, possible future research directions are discussed.

Keywords: Autistic traits eating behavior children

I. Introduction

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder that begins in early childhood and is characterized by social difficulties, communication difficulties, limited activities and interests, and repetitive behaviors (American Psychiatric Association & D, 2013). The prevalence of ASD is increasing year by year. The survey data in China showed that the incidence rate of ASD among children aged from 6 to 12 years old was 0.7%, which was basically close to the global incidence rate (Zhang & Han, 2020). A recent systematic review showed the global prevalence of ASD was approximately 1% (Zeidan et al., 2022).

Autism traits (AT), also known as subthreshold autism traits, subclinical autistic traits, broader autism phenotype (BAP), refer to normal traits that are continuously distributed and widespread in the population and are similar to a series of symptoms of ASD patients, manifesting as impairments in social, communication, cognitive and emotional processing functions (Crehan et al., 2018). The detection rate of individuals with high autistic traits in different studies ranges from 8.9% to 12% (Crehan et al., 2018; Kamio et al., 2018). Individuals with high autism traits are more likely to have behavioral and psychological problems. Research has found that compared with the normal population, individuals with high autistic traits are more likely to have mental and psychological problems, such as obsessive-compulsive disorder, ADHD, anxiety, depression, sleep disorders, etc (Martin et al., 2020). Adolescents with high autistic traits have higher depression scores, poorer friendship quality and empathy (Rai et al., 2018). Research on college students found that autistic traits are negatively correlated with empathy.

Children with ASD have severe eating problems. Meta-analysis shows children with ASD are five times more likely to have eating problems than normal children (Sharp et al., 2013). This may be due to the presence of restricted and repetitive stereotyped behaviors in children with ASD, such as over- or under-reaction to sensory input, a trait that causes children to develop food selectivity (or picky eating), that is, individuals are very picky towards which foods they accept and reject, refusing food, eating a limited variety of foods, and frequently consuming a single food (Bandini et al., 2010; Zickgraf et al., 2022). Hubbard (2014) found that children with autism often develop overt food aversions due to food texture, olfactory/taste hypersensitivity, preference for specific brands of food, and aversion to mixed foods on the plate. Some studies have also found that children with autism spectrum disorders eat less fruits or vegetables or are picky eaters, which may lead to malnutrition in the long run (Chistol et al., 2018; Liu et al., 2016; Ranjan & Nasser, 2015; Sharp et al., 2013; Smith et al., 2020).

The high proportion in general population may indicate the increased rate of children with autistic traits. However, they are often ignored because they do not meet clinical diagnostic criteria. If their psychological and behavioral problems are not paid attention to, they may increase the risk of developing into ASD. In addition, considering the prominent dietary problems of autistic children, although children with autistic traits do not meet the clinical diagnostic criteria for autism, they may also have some dietary problems similar to those of autistic children. Therefore, this article will further sort out the current research status related to the eating behaviors of children with ASD, help everyone better understand the relationship between children with autistic traits and eating behaviors, and propose possible future research directions.

II. The relationship between eating behavior and autistic trait

Two studies utilized the data from longitudinal cohort study to explore whether eating behavior at early age predicts later autistic traits. For example, in the population-based Raine Study in Perth, Western Australia, a total of 2868 children have had comprehensive follow-up assessments at ages 1, 2, 3 years for dietary intake and age 20 years for autistic-like traits. As autistic-like traits increased, total food variety, core food variety and dairy variety decreased, with a lower consumption of citrus fruits and yoghurt (Panossian et al., 2021). 3546 mother-child dyads participated in van't Hof (2021) study, the result showed that infants with formula fed at 2 months was associated with a higher autistic trait score at 6 years.

Another study examined the relationship between autistic trait in early age and diet quality in late stage and find that autistic trait at early age can predict the diet quality in later. Harris (2022) investigated 4092 parents of children and asked them to report their child's autistic traits at 1.5, 3, and 6 years; food selectivity at 4 years; and food intake at 8 years. Two autistic trait trajectories were identified by using Latent Class Growth Modelling, which are children with low and stable and high and increasing autistic traits groups. Children with high and increasing group had poor diet quality than those in the low and stable group. Food selectivity mediated the relationship between autistic traits at 1.5 years and diet quality at 8 years.

Besides, one study used the cross-sectional data to explore the association between autistic trait and eating

behavior. 305 parents (57 fathers and 248 mothers) of preschool children was invited to finish the questionnaires that assess the preschool children's autistic trait and eating behavior. The total score of AQ-10 was positively correlated with CEBQ subscales of slowness in eating and food fussiness, but was negatively correlated with CEBQ subscale of enjoyment of food. Children with high autistic traits reported unusual eating behaviors (loss of enjoyment of food and food fussiness)(Qiu et al., 2022).

III. Result and Suggestions

In conclusion, only several studies focus on the autistic trait and eating behavior in children. Some studies have focused on the relationship between early eating behaviors and later autistic traits, while other studies have focused on the relationship between early autistic traits and later dietary quality. Considering that the number of current studies is very small, and different studies use different tools to examine autistic traits and eating behaviors, in the future, we can explore the eating behaviors of children with autistic traits from the following perspectives:

Firstly, by simultaneously examining individuals' autistic traits and eating behaviors in follow-up studies, we can more accurately characterize their changing trends over time and their relationship with each other.

Secondly, considering the abnormal sensory-perceptual performance of autistic children, the possible influencing mechanism between autistic traits and eating behavior can be further explored from the perspective of sensory-perception.

Finally, carry out continuous tracking of children with high autistic traits to understand how many children with high autistic traits may develop into autism in the later stages. Combined with the development characteristics of their sensory perception and eating behavior, we hope to find some valid indicators that are helpful for early identification and screening of autism.

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