

Association Between Autism Spectrum Disorder and Eating Disorder: A Narrative Literature Review.

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Abstract. Within the literature, much research has addressed the possible correlation between ASD and ED. A narrative literature review was carried out with the objective of investigating the most recent articles that addressed the clinical relationship between these two diagnoses in order to facilitate the current understanding of the theme. The articles available for viewing in the Scopus, Pub Med and Scielo databases were selected, having as inclusion criteria the publications in English from 2013 – 2023. Among the articles studied, it was possible to understand that most individuals with ASD present symptoms of ED's, which is closely linked to sensory sensitivity, food selectivity, food neophobia and repetitive patterns of behavior. The classic treatment for ED is not very effective in autistic patients. From this clinical correlation, it is evident the importance of professionals knowing how to deal with atypical patterns of eating disorders that differ from conventional treatment and being able to formulate a diagnosis of ASD to guide an individualized and effective treatment.

Keywords. Autism, Autism Spectrum Disorder, Eating Disorder, Anorexia, Bulimia, Feeding Disorder

1. Introduction

Autism Spectrum Disorder (ASD) is a condition that involves a deficit in communication and social interaction, as well as repetitive patterns of behavior and interest. Although the signs are more easily identifiable at 2 or 3 years of age of the child, especially when starting school life, some symptoms may be noticed before 1 year of age. Some signs that are a result of a social communication deficit include difficulty establishing a conversation, poor expression of emotions and affection, difficulty understanding, aversion to maintaining eye contact and difficulty developing and maintaining relationships. In addition, people who deal with ASD have little flexibility with changes to routines, hypersensitivity to sensory stimuli such as very loud noises, obsessive and restricted interests in certain subjects or objects, and stereotypical movements or speech such as clapping hands. The impairment in the quality of life of each individual varies according to the severity of the condition, so that the functional impairment may be mild. ASD encompasses early childhood autism disorders, childhood autism, Kanner's autism, high-functioning autism, atypical autism, pervasive developmental disorder not otherwise specified, childhood

disintegrative disorder, and Asperger's disorder (1, 2).

One of the behaviors that was observed in people with ASD was a specific eating pattern of refusal and selectivity with certain foods. Children with ASD have more eating problem compared to typically developing children. Among the possible explanations for selective eating behavior are hypersensitivity or hyposensitivity to some foods and liquids, as well as the intense preference and insistence on the same foods, resisting to any change in routine. Parents of children who suffers from ASD find it difficult to cope with meals due to extreme food selectivity and acceptance of few foods. This very restricted eating pattern generates a concern with the nutrition of these children since their diet must be balanced and adequate. (3-5).

Considering this feeding difficulty in autistic patients, several studies have analyzed the possible relationship between ASD and Eating Disorders (ED) from the perception of autistic traits among patients with ED (6). ED are behaviors characterized by changes in food consumption, generating a compromise in the physical and psychic health of the individual. Among ED exist

anorexia nervosa (AN), bulimia nervosa (BN), binge eating disorder (BED), avoidant restrictive food intake disorder, other specified feeding and eating disorder, pica and rumination disorder (1, 2). In 2019, 14 million people suffered from eating disorders, of which about 3 million were children and adolescents (7).

In 1983, Gillberg conducted one of the first studies that correlated ASD and ED, in which it was possible to notice that some patients with anorexia nervosa presented autistic traits such as problems of social interaction (8). The possibility of intersection between these two conditions allows a better understanding of the different eating behaviors in diseases (6). Considering that many advances have been made on the subject since then, this article aims to conduct a narrative review on the relationship between ASD and ED, providing a more up-to-date overview to facilitate the understanding of the topic in question.

2. Research Methods

A literature review was performed using a selection of articles available in Scielo, PubMed and Scopus databases. The keywords used were: "Autism", "Autism Spectrum Disorder", "Eating Disorder", "Feeding Disorder", "Anorexia", "Bulimia" and "Eating Behavior". As inclusion criteria, we used original articles published only in English whose publication date was 2013-2023. The exclusion criteria were absence of predetermined variables and articles unavailable for viewing. An analytical and selective reading of the articles was performed according to the interest and relevance to the study.

3. Results

Several studies have addressed the nutritional inadequacy of autistic children, mainly due to the problems of food rejection, unbalanced intake, inappropriate behaviors at the meal and food preference due to sensitivity in children with ASD (9-11). Some other behaviors of autistic children observed during feeding may include refusal to try new foods, consumption of less variety of foods, less interest in new foods, as well as stating that they do not like something without even trying, eating less when stressed or sad, and more when happy (12).

The evaluation of the calorie consumption of this population was variable in the observed researches. One of the studies noted that autistic children tend to consume almost 16 percent fewer calories when compared to typically developed children, as well as eating a higher percentage of carbohydrates and a lower percentage of protein and fat (13). Meanwhile, another study revealed that autistic children had both insufficient and excess calorie consumption and that when comparing body composition and nutritional status there was a prevalence of 18.4% of underweight and 16.3% of obesity in this population (14). The predominance of obesity was

evidenced in other studies, which also demonstrated that the obesity rate was higher in children with ASD than in other children (15).

Inadequate nutrient intake was present in 50% of children with ASD, with more than 10 nutrients missing from the eating routine and an extremely selective behavior pattern with food (14). According to a study that sought to analyze the frequency of eating disorders among autistic children, 84.8% of children with ASD had food selection. Among the foods most rejected by these children are fruits, cheeses, vegetables, fat milk and yogurts (15). Excess weight and nutritional deficiencies are related to the preference and selectivity for processed foods such as sweets and soft drinks and not very rich in nutrients, linked to a low variability in the diet (16). However, it was evidenced this food refusal is more common among younger children aged 2 to 5 years compared to those aged 6 to 10 years, indicating that this "peaky eating" behavior declines with age (15).

A very common trait seen in ASD that explains food selectivity is food neophobia (FN), that is, the tendency to refuse unknown foods, especially fruits and vegetables which are rich in nutrients. If this food neophobia persists throughout childhood, it has a consequence on the nutritional quality of the individual and may impact on the individual's health (17). In order to reinforce the impact of food neophobia on autistic children, one study evaluated the relationship between NF and autistic behavior at the clinical and subclinical levels. According to the result, children with ASD tended to have more neophobia in relation to food when compared to non-autistic children of the same age and that the presentation of autistic traits was directly associated with NF (4).

There are suggestions that anorexia nervosa and ARFID share pathological mechanisms common to autism, such as social difficulties and obsessive-compulsive traits (18). In a prospective longitudinal study of young children diagnosed with ASD, was found that feeding problems were present in 76% of children. The Avoidance Restrictive Food Intake Disorder (ARFID) criteria were met by 28% of the children and 26% of them had some other feeding disorder. Among those classified as ARFID, lack of interest in eating and avoidance of food based on the sensory characteristics of the food began during the first six months to a year. In addition, children with ARFID had a lower BMI compared to those with other eating disorders and needed nutritional supplements for long periods (19).

Within the eating disorder literature, a considerable number of articles have established a link between common features in anorexia nervosa (AN) and autism. Researches have stated that malnutrition in AN determined ASD-like behaviors such as obsessive behaviors and ritualism, and these decreased when nutritional status returned to

normal (20). Since Gillberg's first correlation, several studies have confirmed the suggestion that autistic conditions may precede AN. Correlations between the severity of autism and eating disorders are increasingly clear due to studies investigating autistic traits from AQ. In order to measure the autistic characteristics in AN, the Autism Spectrum Coefficient (AQ) was used, in which patients with AN scored higher than the healthy control group (21). It has been seen that autistic women have a high risk of developing AN and 20-35% of women with AN fall under the ASD criterion (22).

One study interviewed women with autism or severe autistic traits about their experience with anorexia nervosa symptoms. The participants reported that autistic traits motivated eating disorder behavior, and these two factors were interconnected. Fixed routines and rituals in relation to food added to sensory difficulties, need for control and organizational problems around food were relevant factors for the development of the disease. Such motivations that culminated in AN in the participants deviate from the traditional pattern found in cases of AN, since in most people have the desire for weight loss linked to low self-esteem and body image problems. Thus, this study suggests that there are specific mechanisms of autism linked to AN and that feeding difficulties deviate from the classic forms of anorexia (23). This finding was reinforced by Bred J, 2020 et.al since the several women in the study said that concerns about weight or body did not dictate their eating patterns, and they were much more related to sensory sensitivity, difficulty in social interaction and need for control (24).

Also, it has been suggested that autistic traits may be present in individuals recovered from AN and therefore, it is important not to restrict the gaze to only the clinical phase of the disease (25). Other studies have explored the occurrence of eating behaviors seen in ASD in young people with AN. It was observed that the dietary pattern seen in individuals with ASD may be present in those with AN, however, in most cases after weight gain this behavior disappears. On the other hand, there are situations in which autistic behavior continues even after weight gain. Consequently, such individuals need to be approached even after recovery so that there is no recurrence (26). In addition, patients who have eating disorders and who have elevated autism traits tend to have a higher rate of hospitalization. Still, these individuals typically have a lower effectiveness in treating eating disorders (27).

Recent articles recruited 12- to 18-year-olds at the onset of the eating disorder and investigated scores on ADOS-2 (a reference instrument for diagnosing autism spectrum disorder) and 3Di-sv (a measure that provides autism diagnosis). Those young people (52.5%) who scored above or equal on ADOS-2 were called by their parents to complete the

3Di-sv in order to assess whether the scores on ADOS-2 were corroborated by the parents' report. Only 10% of the individuals scored above the limit in these two parameters, suggesting that although a relevant amount of young people present symptoms associated with ASD, such symptoms are not necessarily present during the initial period of the development of the eating disorder. One possibility for this is that the symptoms of autism are not recognized by parents during childhood, compromising the diagnosis (28).

The co-occurrence of autistic traits and eating disorders directly impacts treatment outcomes, with those individuals with more severe traits responding differently to ED treatment compared to those with milder traits (29). The vast majority of interventions are designed for non-autistic people. However, considering the evidence that autistic individuals require different treatments, an adaptation in the standard of care would be beneficial (30). An example of this is that patients with AN and severe autism traits show little recovery after classic group psychotherapy interventions, but in individualized interventions they show improvement of the clinical picture (31).

A first differential in the clinic that would promote better treatment is the ability to recognize autistic traits clearly and in advance (30). Many of the women with ED do not present the diagnosis of autism when they present to the treatment services for ED (24, 32) and most of these services have difficulty and delay in identifying individuals with ASD, negatively impacting the treatment since the intervention will not be appropriate to it (23, 30). One of the explanations for this issue is the lack of confidence of service physicians in identifying and referring individuals for a clinical evaluation of autism (33).

Therefore, clinical services need an efficient way to identify individuals with autistic characteristics early in treatment. Among the methods for evaluation, the services make extensive use of the autism quotient screening questionnaires such as the AQ-10 to indicate autistic traits. In addition, other screening tools have been developed such as Ritvo Autism Asperger Diagnostic Scale (RAADS) and used in ED services (34). One limitation that screening tests encounter when used in patients suffering from autism and AN is that often these two diagnoses have overlapping characteristics, making it difficult to distinguish between features that reflect autism and those that reflect AN (23).

Considering the clinical correlation between the diagnosis of ASD and ED, it is evident the relevance of knowing the different patterns of eating disorders to be able to provide an appropriate and targeted intervention for autistic patients, considering that the conventional approach is not effective in these individuals. Know how to identify the autistic characteristics in the consultation and make a

clinical reasoning that has a positive impact on the treatment.

4. Conclusion

Several studies show that the symptoms of ASD are strongly associated with eating disorders. Children with autistic traits have a very high eating difficulty due mainly to repetitive eating patterns, sensitivity to texture and selectivity. Among the EDs, one of the most present among autistic women was anorexia nervosa, and in these individuals the AN deviates from the typical pattern associated with low self-esteem and desire for weight loss. Traditional treatment of EDs is also less effective in people who share autistic characteristics. Therefore, the correlation between these two diagnoses reinforces the importance of professionals identifying the diagnosis of autism in order to be able to continue treatment effectively.

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