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Parental Attitudes and Behaviors Associated with Selective Eating in Children with Autism Spectrum Disorders

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Abstract

Although sometimes it appears as a natural behavior in children, selective eating can become problematic and severe, implying aliments rejection, a low range of eaten foods, the predominance of some foods in the child's repertoire, aversion and avoidance of various food based on look, taste, texture, or smell. Consequences of selective eating can be noticed on health and development, interactions and inclusion in social settings, emotional and behavioral problems, low self-esteem, distress, and other family problems. In children with autism spectrum disorders (ASD), it can be associated with sensory processing disorder, mood disorders, and health problems, and can become severe (eg., avoidant restrictive food intake disorder). Parental attitudes and behaviors, family dynamics during mealtimes, the emotional climate of the family, social support, and cultural and social factors have a significant impact on the problem. A case example of a 13-year-old child, diagnosed with severe autism spectrum disorder and intellectual disability, with selective eating (a low variety of foods in his menu, food refusal, and behavioral interference during mealtimes) and a tendency towards overweight will show the co-occurrence of selective eating and parental problematic behaviors. The child's sensory profile (reported by the parent) revealed no differences from the norms. Parental tendency to overly gratify the child's behavior, excessive worrying, and excessive assistance were associated with the child's tendency to eat selectively, as well as to his preference for unhealthy foods and refusal of healthy ones. The attachment between mother and child seems to be anxious and there is a high degree of fusion in the relationship. Intervention for the eating problems can include attachment-based therapies, systemic family therapy, cognitive-behavioral therapies, and training of parenting skills.

Keywords: autism spectrum disorders, selective eating, nutrition habits, parenting behaviors.

Introduction

Neurodevelopmental disorders (NDDs) are a group of conditions that begin in the developmental period and lead to pervasive deficits that impair functioning on several essential areas for the child's adaptation (Compan-Gabucio, Torres-Collado, and García-de-la-Hera, 2024, Brytek-Matera, Ziółkowska, and Ocalewski, 2022). A lot of the problems that children and adolescents have require a set of special services and interventions but eating behavior and nutritional status usually require special attention, due to their specificity in NDDs (da Silva & Gomes, 2024). In the case of selective eating, children show atypical eating behaviors, that can be associated with emotional and cognitive alterations (Calisan Kinter et al., 2024, Johnson et al., 2014), as well as dysregulated body weight and health status. It is the most prevalent eating behavior alteration among children with autism spectrum disorder (ASD), often co-occurring with the propensity of the child to be overweight (Shmaya et al., 2015, Sammels et al., 2022).

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Autism spectrum disorder (ASD) is one the most challenging NDDs, characterized by impairments in two main areas of functioning: social communication and restricted and repetitive patterns of behavior and interests (American Psychiatric Association, 2013/ 2022, WHO, 2022). Children and adolescents with ASD often experience symptoms and deficits specific to various comorbid problems: language deficits, hyperactivity, challenging behaviors, pica.

Disordered eating in children with ASD cand be caused by sensory sensitivity, refusal of novel foods (food neophobia), food restrictions (based on textures, brands of foods), feeding problems (Schreck & Williams, 2006). In recent years, intestinal microbiota disorders (dysbiosis) were researched and proved to be a basis for some of the disorders in children with ASD (Taniya et al., 2022, Xiaoling et al., 2022). Also, autonomous nervous system disorders (dysautonomia) can constitute causes for some of the behavior difficulties (Kral et al., 2013), while interoception difficulties can also be linked with eating disorders, as well as other problems in ASD (DuBois et al., 2016, Loureiro, Ringold & Aziz-Zadeh, 2024). Children with this condition ofter experience impulse control and emotional regulation difficulties, that are leading to significant difficulties in various areas of functioning (Baraskewich et al., 2021).

By considering these multiple factors and their interaction, caregivers and clinicians can more effectively support children with ASD in overcoming eating challenges, improving nutritional intake, and enhancing overall functioning.

Selective eating, with its more severe form, avoidant restrictive food intake disorder (ARFID) is a common problem for children with ASD, with higher incidence than in typical children. It implies the acceptance of a limited variety of foods and refusal of others, doubled by restrictive calorie intake, and sometimes rituals, obsessions around food consumption (Marí-Bauset et al., 2014). The disorder is more challenging in children with ASD, because they are more adherent to their habits, less likely to accept changes, so there is a high probability for the disorder to become persistent (Schreck & Williams, 2006).

One of the most cited causes of selective eating în children with ASD is sensory aversion, manifested as aversion for some tastes (eg., sour foods), some textures (eg., sticky foods), temperatures, colors, smells, and preference for certain products (eg., crispy foods). Children with ASD are more likely to refuse foods that have mixed ingredients, they prefer a uniform structure on the plate, and no contact between foods. The adherence to inflexible feeding patterns or organization of dishes and foods on the plate is often more intense in these children. Their sensory integration disorders, difficulties in perspective-taking, in understanding others' points of view, and theory of mind problems can explain atypical eating behaviors (Byrska et al., 2023, Brytek-Matera, Ziółkowska, and Ocalewski, 2022). Some authors have found that there are some difficulties identifying certain tastes in children with ASD.

Sensory integration disorder is characterized by an inability to organize those stimuli that reach the nervous system from the environment and integrate these stimuli with experiences from the past, as well as a hypersensitivity to various types of stimuli (auditory, olfactive, taste, tactile etc.), with effects on the sensitivity to specific food characteristics: taste, color, temperature, texture (Byrska et al., 2023). Therefore, this particularity was often linked with selective eating in these children.

Dysregulation of the autonomic system can also explain some of the feeding difficulties. Autonomic system controls both digestive functions and emotional responses, and therefore they can represent a common ground for the atypical eating in children with ASD (Kral et al., 2013).

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Selective eating in children with ASD is often linked to the broader characteristic of the condition, including stereotyped patterns of interests and activities, a higher proneness to rituals, a strong preference for routines, a need for consistent patterns, and a poor tolerance for new activities and sensations. Thus, children prefer the same foods, associated with security and a desire for familiarity. Eating rituals can be manifested as a persistence on eating specific foods at certain times of day, or they may have a set pattern for how food must be prepared or presented. Disruption or change in these routines, such as trying new foods, can lead to anxiety or refusal to eat. Some behaviors that the children present can be aimed at avoiding exposure to certain foods: hetero and self-directed aggression, internalizing (eg., withdrawal) or externalizing behaviors (eg., screaming, crying), repetitive behaviors, leaving the table, spitting, vomiting, anxiety, sensory reactivity (Tanner et al., 2015).

Selective eating can negatively impact both the child with ASD and his or her family (Baraskewich et al., 2021). The level of parental distress regarding children's eating habits can be higher and the family can experience negative reactions around mealtime routines, which interferes with daily functioning (Esposito et al., 2023). Also, it can be difficult for the family to have shared meals with others, which can impede socializing.

At an individual level, several risks for nutritional deficits resulting from limited dietary variety can occur, and the child can be either under or overweight. Also, gastrointestinal symptoms can become problematic, as constipation is frequent, due to the aversion of fiber-rich foods. Further alteration of gut microbiota is therefore likely to occur (Esposito et al., 2023).

Due to inflexible preferences of food, social challenges can arise, such as difficulties integrating into peer groups. Children can be exposed to social exclusion, can have difficulties participating in group activities (eg., lunchbreaks, parties), can be excluded from social interactions with peers that take place around shared meals, can face stigma of judgement from other children due to their odd food preferences (Ismail et al., 2020).

The eating habits of the family play a significant role in the definition of selective eating in children with ASD (Schreck & Williams, 2006). Food choices of other family members can have a shaping effect on the child's preferences, while their eating behaviors represent important influences on the child's behavior around food. The family environment is the most important setting for the development of the social components of nutrition, so parental behavior is an important variable in the definition of the child's selective eating. On the other hand, parent-child attachment is another variable that defines eating habits. Attachment security may foster less rigid eating behaviors in children with ASD.

Because of the complexity of the problem of selective eating, which is definitely not just a matter of food preference, professionals have difficulties determining the most effective type of treatment. Multidisciplinary assessments and treatments are most effective and therefore recommended. However, most interventions that were mostly researched were behavioral in nature and they can overlook potential underlying causes.

The objective of the current study is to explore the relationship between selective eating, sensory profile and parental behavior in the case of a pre-teenager with severe ASD, in order to identify some of the challenges around this problem and some possible solutions.

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Method

Participant

A 13-years old child, male gender, diagnosed by a psychiatrist during early childhood with a severe form of ASD participated in our study, with informed consent from the mother. His IQ level is 78, borderline intellectual disability. Due to the severity of his problems, the child needs substantial support, and the mother is with him most of the time after he finishes school. The child is enrolled in special education. According to maternal reports, the child is in good general health. His weight is above average for age, with a BMI of 23.9 to 25.7, height 165 cm, weight between 65 and 70kg. Family history includes some problems, such as epilepsy and deaf blindness in the extended family, but no other relatives with ASD.

Regarding family composition, the family is composed of two married parents, who were mature adults when the child was born, mother aged 23 and father 25 years. The education level of the mother is average (highschool level), while the father's education is more precarious (middle school level). Both parents are working, the mother is a commercial worker, while the father has two jobs, one as a kitchen helper and the other as a doorkeeper.

The mother is the primary caregiver of the child, since the father works double shifts and many times the child is asleep when he comes home from work.

The family functioning is marked by some marital disagreement (eg., on the topic of having another child, on the mother's working hours etc.) and agreement on several topics (eg., that the mother is the main caregiver of the child, that the father needs to work double shifts). When the mother is at work, the child is in the paternal grandmother's care. The general level of distress is high in the family, according to the mother.

Instruments

In order to describe the nutrition habits of the child, an interview with the mother and several behavioral observations of the child while eating was performed. The interview included the following topics: (1) information on family functioning and (2) information on the child's nutrition and eating behavior. The behavioral observation included: (1) observation of lunch routine, (2) communication between mother and child around eating, (3) the child's autonomy.

Besides the interview and the observation, three reports were filled by the mother:

1) Short Sensory Profile (SSP, McIntosh et al., 1999, 38 items) – targets the identification of sensory sensitivity, on various modalities: tactile sensitivity, taste/smell sensitivity, movement sensitivity, sensation seeking or under reactivity, auditory filtering, low energy or weakness, and visual and auditory sensitivity.

2) Brief Autism Mealtime Behavior Inventory (BAMBI, Lukens, 2005, 18 items) – includes factors related to selective eating: limited variety, food refusal, autism spectrum typical behaviors during mealtime.

3) Parenting Behaviors and Dimensions Questionnaire (PBDQ, Reid, 2015, 36 items) – assesses the level of affection, punitive discipline, anxious intrusivity, support for autonomy, permissive discipline, and democratic discipline in parents.

Results

1. Interview with the mother

The interview with the mother reveals that the eating habits of the child are marked by repetitive habits, including daily lunch at a fast-food restaurant. The preference for fast food is a stable habit

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that the mother respects because the child does not have difficult behaviors when he eats it. He eats other foods, from restaurants or supermarkets, but they need to be presented in the same manner for him to accept to eat, with different foods not touching each other on the plate.
According to the mother, the child's eating habits improved, compared to the past, when his breakfast menu consisted of sweets. Every day he used to vomit at school and the mother changed this routine with a lot of effort.
The mother considers that the dietary repertoire includes a variety of foods: pizza, rice, dairy products (butter), vegetables (red onions and salad from the fast food sandwich), fruit (only as smoothie or lemonade), cereals as pasta, animal protein (chicken and pork).

2. Behavioral observation of daily eating routine during lunch

The meal routine consists of the child ordering his own food from an order board, prompted by the mother who is familiar with his daily ritual. He orders fries, hamburgers, soda, large portions. He eats together with the mother, who gets snacks from the same fast food, after which the two go home, where the child gets another soda. The mother reminds him daily of the soda, by stroking his back, and she insists until the child accepts.
Communication is difficult, both with respect to receptive and expressive language. The receptive language is precarious, the child understands what is being said with mother's mediation, who rephrases the question of the other person in easier words, for the child to understand. The expressive language consists of short utterances, not intelligible, the mother rephrases the child's response to the speaker. The mother physically and verbally prompts the child so that he understands the question and gives an answer.
After eating, the child asks his mother for her phone, and watches videos with cars, his special current interest, every day asking to watch a car of a certain type and color. He often becomes bored or frustrated if the mother is not giving him attention or is involved in an activity and the mother gives him various games on the phone, to keep him busy.
The child's autonomy is also precarious for his age. He is held by hand and guided by the mother when walking in the street towards home. The mother touches him every time he engages in stereotypical behavior, to prompt the child to stop. He is supported by the mother step by step, needing to be prompted and guided for every activity that he does.

3. Results of the reports

The Short Sensory Profile (SSP) questionnaire showed no notable differences from typical development on any of the sensory modalities, there were no identified sensory sensitivities from maternal report.
The Brief Autism Mealtime Behavior Inventory revealed more than average limited variety, food refusal and challenging behaviors during mealtimes.

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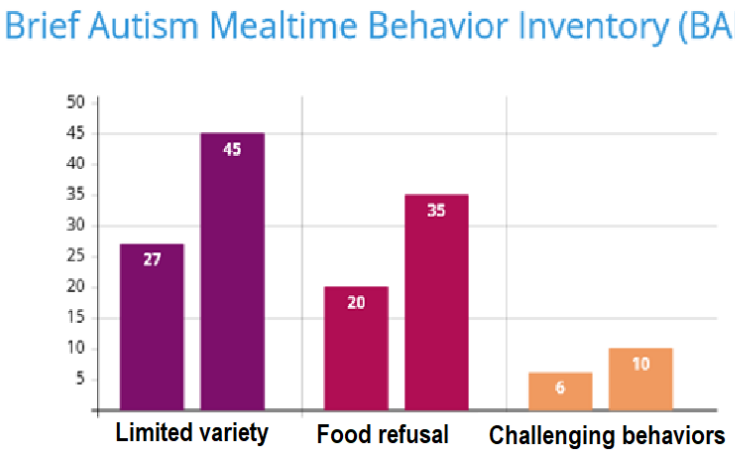
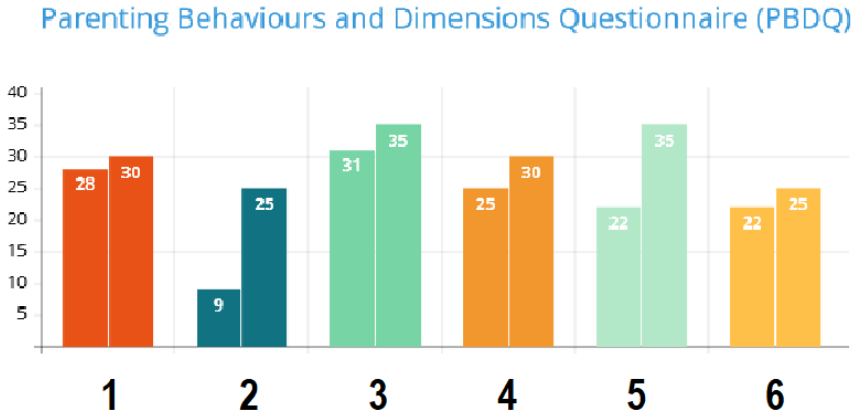
Figure 1. *Results obtained for food selectivity*



Note. *The left bar represents the score from maternal report, the right bar the maximum possible score.*

The child showed above average value for low variety in eating, from the report completed by the mother. What stood out more was that D. prefers the same foods at the table, prefers food to be served in a certain way, and prefers crunchier foods.
Also, the results showed an above average value in terms of food refusal. The child cannot stand certain foods and refuses to eat them, he may turn his face or body away from food.
The third subscale showed a slightly higher than average level of possible disruptive eating behavior. The child prefers food to be prepared in a certain way (especially prefers fried food).
The Parenting Behaviors and Dimensions Questionnaire revealed a series of difficulties in parental practices, that can be linked with the child's difficult behaviors during mealtimes, as well as his selective eating.

Figure 2. *Results obtained for parenting behaviors*



Note: *1 - level of affection, 2 - punitive discipline, 3- anxious intrusivity, 4 - support for autonomy, 5 - permissive discipline, 6 - democratic discipline. The left bar represents the score from maternal report, the right bar the maximum possible score.*

The Affect subscale shows that the mother tends to have a high level of affection in relation to her child. She describes herself as a parent who always tells her child that she is proud of him, responds to her child's feelings or needs, shows interest in her child's life, shows unconditional love, notices

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his strengths and talents, finds time for him when he needs her. The score shows a level of affection expressed to the child close to the maximum total score.

The Punitive discipline subscale had a very low score, showing the low level of punishment that the mother uses in disciplining the child. The mother describes that sometimes punishments are influenced by her mood, that she sometimes loses patience when the child does something that upsets her, that she is permissive in one moment and harsh the next, and that she threatens her child with punishments she would never inflict. The mother describes that she never punishes her child more severely than she wishes. The level of punitive discipline shown by the score is below the average for the subscale.

The anxious intrusion score shows an increased level shown by the mother, who tends to become stressed in her relationship with the child. The mother always worries when the child is not at home, she is more concerned about the child's feelings than her own, and she tries to protect her child from negative emotions. The mother reports that she shares more of her life with her child than with anyone else, she tries to anticipate her child's needs and fulfill them before he asks, she relies on her child to cheer her up when she is upset, and she tries to fulfill her child's wishes immediately. Scoring shows a level of anxious intrusion close to the total score.

The score for support of personal autonomy shows a high degree of encouragement that the mother gives to the child in order to become autonomous. The mother's self-appraisal highlights that she always encourages her child to try things on his own before asking for help and she encourages her child to choose his own interests and activities. The mother often encourages her child to solve problems, she lets the child try to find solutions on his own before offering advice, she adjusts her level of assistance according to the child's age and ability. The score shows a level of personal autonomy support close to the maximum score.

The score for permissive discipline is higher than average, showing an increased level of permissiveness in the way the mother is disciplining her child. The mother often does things for her child when he refuses to do them, gives them in to the child when he gets upset, does things in the place of the child that he is capable of doing himself. The mother does not punish her child if he apologizes. The score shows an above average level of permissiveness in disciplining.

The score for the subscale democratic discipline shows a high level of democratic discipline. The mother always: talks to the child about the consequences of her actions, tells the child what behavior is expected of him. The mother often explains to the child how she feels about his behavior, tells the child the reasons why he is not allowed to do something, encourages her child to consider the consequences of his choices before making them. Scoring shows a level of democratic discipline close to the maximum level.

The overall Psychological Control factor (sum of the factors Punitive Discipline, Anxious Intrusion, and Permissive Discipline) is at a high level compared to the average (62/95 points).

Overall, the child manifests a high level of selective eating, with unhealthy routines and stereotypical preferences for certain foods, based on their sensory characteristics. The mother presents a tendency to not punish and not limit the child’s difficult behaviors and, moreover, she reinforces his problematic rapport with food.

The assessment of the child's sensory and mealtime behaviors, as well as the parenting practices reported by the mother, reveals several important insights into the child's selective eating and the familial dynamics contributing to it.

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Conclusion

Regarding the selective eating behavior, the child with ASD that we included in our study displays above average food selectivity, particularly in the areas of food variety, food refusal, and disruptive eating behaviors. The child shows a clear preference for certain foods (e.g., crunchier textures, fried foods) and is resistant to trying new or disliked foods, often refusing them entirely (e.g., turning away from food). This pattern of selective eating is common in children with ASD, as they often exhibit rigid food preferences and difficulties with new sensory experiences, such as the taste, texture, or smell of unfamiliar foods. Additionally, the child's preference for food to be served in a specific way (e.g., fried food) is in line with the tendency in ASD for strong adherence to routines and predictability. These behaviors likely contribute to the challenges during mealtimes, making them more difficult for both the child and their caregivers.

With regard to parental practices, they provide further context to the child's mealtime behaviors. The mother's high level of affection suggests a nurturing, supportive relationship, which is positive for the child's emotional development. However, there are notable challenges in the mother's parenting approach, particularly in the areas of anxious intrusion and permissive discipline. The mother's anxiety about the child's well-being and her tendency to anticipate and fulfill the child's needs immediately might be contributing to the child's resistance to change, including trying new foods. While her high level of support for autonomy is encouraging, it may be inconsistent with her anxious behavior, creating tension around mealtime routines. The permissive discipline reported indicates that the mother sometimes gives in to the child's demands, which could reinforce the child's food selectivity and refusal behaviors. The mother's low level of punitive discipline also suggests that there is little negative reinforcement for undesirable behaviors, including food refusal or disruptive eating. This permissive approach may unintentionally encourage the persistence of the child's selective eating behaviors.

In terms of psychological control and mealtime challenges, we found a higher than average level of psychological control, which suggests that the mother may have difficulty setting clear boundaries and maintaining consistent discipline, particularly around mealtime behaviors. This can create a cycle where the child's selective eating becomes a point of tension or inconsistency in the home environment. In the context of mealtime challenges, the child's food preferences and refusal behaviors, combined with the mother's anxious and sometimes permissive responses, may be contributing to a cycle of difficult mealtimes that reinforce the child's selective eating habits. While the mother's democratic discipline (explaining rules and expectations) is positive, the overall picture suggests that the family may benefit from strategies to establish clearer, more consistent boundaries around eating and mealtime behaviors.

A co-dependent mother-child relationship, with the parental tendency to overly gratify the child's behavior, excessive worrying, and excessive assistance were associated with the child's tendency to eat selectively. The attachment between mother and child seems to be anxious and there is a high degree of fusion in the relationship, with boundaries and limit-setting precarious from the mother towards the child.

In terms of implications for intervention, a more in-depth medical check-up would be necessary, to clarify the impact of selective eating on the physical health of the child. Behavioral interventions, consisting of the manipulation of antecedent and consequences during mealtimes could be a useful therapeutic path to follow. Also, addressing selective eating by focusing on gradually expanding food variety through structured, consistent exposure to new foods, while

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taking into account the child's sensory sensitivities would be useful. Collaborative efforts with a speech therapist or an occupational therapist specializing in feeding behaviors may be beneficial.
Parent-Mediated intervention and training and parenting support for the mother, in managing her anxious intrusion and permissive discipline could be focused on promoting more consistent discipline and setting clearer expectations for eating behaviors. This could help reduce the child's resistance to mealtimes. This might include setting firm yet nurturing boundaries around food refusal while maintaining a calm and consistent approach to discipline.
The gradual change of unhealthy routines, based on the child's preference for specific food preparations and routines, could consist in introducing gradual changes to mealtime routines in a way that respects the child's need for predictability. This could involve creating structured, positive experiences with new foods while maintaining a consistent and reassuring environment, so that gradually his preference for unhealthy foods could be reduced.
Individual psychotherapy for the mother to approach her difficult emotions around her child's diagnosis, as well as family counseling to learn a proper way to practice support and manage distress and conflict could be beneficial for the family system. By addressing both the child's selective eating behaviors and the parental practices contributing to mealtime challenges, there may be potential for improving the child's eating habits and reducing mealtime stress, while also supporting the development of more effective parenting strategies.

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