Association between parenting styles, food selectivity, and nutritional status in children with Autism Spectrum Disorder

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Highlights

• *76.9% of the children exhibited food selectivity, with the behavior "always selective" being the most prevalent (48.1%).*
• *The uninvolved parenting style was predominant, identified in 55.8% of caregivers.*
• *Fifty percent of the children presented an adequate nutritional status; however, there were notable cases of excess weight, particularly among boys (obesity: 15.4%; severe obesity: 17.9%).*

Graphical Abstract
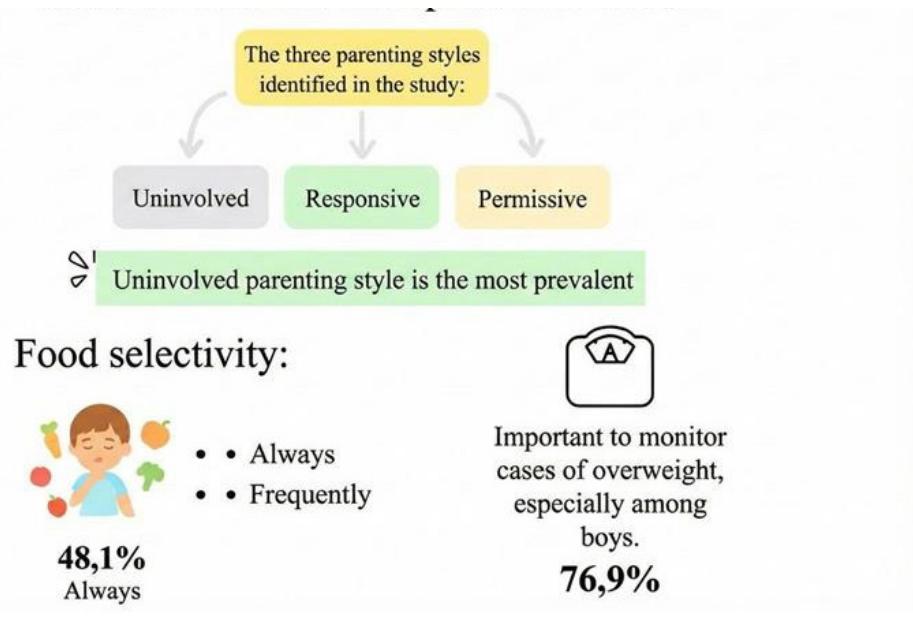
Abstract

To evaluate parenting styles related to feeding and the nutritional status of children with Autism Spectrum Disorder. This was a quantitative, cross-sectional, observational study using primary data collection. A total of 52 parents and/or guardians of children of both sexes aged 5 to 10 years participated. Parenting style was identified using the Parental Feeding Style Questionnaire. Food selectivity was assessed using the Eating Behavior Assessment Scale for Patients with Autism Spectrum Disorder. Nutritional status was determined through the following indices: weight-for-age, height-for-age, and body mass index-for-age. The three parenting styles identified in this research were uninvolved, responsive, and permissive. Regarding food selectivity, most children (76.9%) were classified as always selective (48.1%) or frequently selective (28.8%). Half (50%) of the children presented adequate weight-for-age. Concerning body mass index, half (50%) were classified as adequate; however, the prevalence of obesity and severe obesity among boys (15.4% and 17.9%, respectively) was higher than among girls (0% and 7.7%, respectively). The uninvolved parenting style was the most prevalent. Moreover, a high presence of food selectivity was observed among children with Autism Spectrum Disorder. Although most children were eutrophic, it is important to monitor cases of excess weight, especially among boys.

Keywords: Autism Spectrum Disorder. Eating Behavior. Child Nutrition.

INTRODUCTION

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition characterized by atypical development, marked by impairments in social interaction and comprehension skills, along with rigid and repetitive behaviors[1,2]. The core features of ASD include limitations in communication and social interaction, difficulty controlling or understanding one's own feelings and those of others, and proprioceptive and sensory alterations, such as changes in pain perception and organic sensations (e.g., smell, taste, and vision)[3].

This condition emerges early in life, within the first years, although most children are diagnosed at approximately four years of age. The search for early signs of ASD remains an area of intensive scientific investigation[4]. The etiology of ASD has long been considered an enigma and is still not fully understood. Scientific evidence indicates that there is no single cause, but rather an interaction of genetic and environmental factors[5]. A characteristic frequently observed in this population, regarding food preferences and eating patterns, is food selectivity, since the main factors influencing ASD development may generate limitations and difficulties in trying new foods. This may cause distress to parents who struggle to offer meals to their children[6,7,8]. Careful assessment of the nutritional status of children with ASD is essential, as they may present nutritional deficiencies, undernutrition, or obesity due to limited and inadequate dietary intake[9,10].

Parents are responsible for the family environment and for deciding which foods are offered, and their attitudes can influence children's eating behaviors. However, the expectation of establishing healthy eating habits may lead to conflict when reality does not align with what was idealized, creating a confrontational familial environment[11]. The manner in which parents conduct meals and respond to their children's feeding difficulties can influence outcomes positively or negatively[10]. In this context, identifying parenting styles is essential, as they reflect caregivers' attitudes in how they manage mealtime[12].

Although feeding-related parenting styles have been studied in the general population, their application in children with ASD remains underexplored, especially using validated instruments within the Brazilian context, such as the Parental Feeding Style Questionnaire (QEPA). In this sense, the objective of this article was to evaluate parenting styles related to feeding and the nutritional status of children with ASD.

METHOD

This was a quantitative, cross-sectional, observational study with primary data collection conducted from June to August 2024. Parents and/or guardians and their children of both sexes, aged 5 to 10 years, who were receiving care at a Polyclinic in the municipality of Floriano, located in the interior of the state of Piauí, were invited to participate. This service specializes in monitoring child neuropsychomotor development and is staffed by a multidisciplinary team composed of a pediatric neurologist, physical therapists, a speech therapist, psychologists, and educational psychologists.

The inclusion criteria for parents were: being the parent of a child with ASD and having internet access. The inclusion criteria for children were: being of either sex, having a confirmed diagnosis of ASD (as documented in the medical record), being between 5 and 10 completed years of age, and receiving care at the Polyclinic. Exclusion criteria for parents were: being illiterate. No exclusion criteria were established for the children.

Parents of participating children signed the Informed Consent Form (ICF), and children aged 7 years or older signed the Child Assent Form (CAF) (Supplementary Material 1).

Parents who agreed to participate completed an electronic questionnaire divided as follows: child identification (initials of the child's name, sex, and date of birth); parent identification (date of birth, income stratified in minimum wages, and educational level); Parental Feeding Styles Questionnaire (QEPA) (composed of 19 questions)[13] (Supplementary Material 2); Eating Behavior Assessment Scale for Patients with Autism Spectrum Disorder (composed of 26 questions used to evaluate food selectivity)[5] (Supplementary Material 3).

Parenting style related to feeding was identified using the Caregiver's Feeding Styles Questionnaire

(CFSQ)[14] validated for the Brazilian population, the QEPA[13] (Supplementary Material 2). The 19 items of this instrument are organized on a five-point Likert scale indicating the frequency of specific parental feeding practices to assess parenting styles through two dimensions: demand and responsiveness. The response categories — never, rarely, sometimes, almost always, and always — were assigned scores of 1, 2, 3, 4, and 5, respectively. The demand score was calculated by averaging the 19 questionnaire responses, and the responsiveness score was calculated by averaging 7 child-focused items (3, 4, 6, 8, 9, 15, and 17) over the mean of the 19 items in the questionnaire. Based on the calculated scores for the two dimensions — "demand" and "responsiveness"—and their respective cut-off points (2.80 and 1.16), participants were classified as "high demand" or "low demand" to define the feeding styles: responsive (authoritative), controlling (authoritarian), indulgent (permissive), and neglectful (uninvolved).

To evaluate food selectivity, the Eating Behavior Assessment Scale for Patients with ASD[5] was used. This is a specific scale for individuals with ASD with no age restrictions. Notably, it is the first Brazilian scale developed based on specific concerns reported by parents and caregivers regarding problematic eating habits and behaviors in individuals with ASD, combined with evidence from the literature on this topic. For analysis, since each factor has a different maximum score due to containing different numbers of items, total scores were converted to a 0–100 scale. The following formula was applied: Factor P = (S/T) × 100, where S = sum of points obtained in the items and T = maximum possible score for the factor. For example, for Factor 2, which refers to food selectivity: Factor 2P = (S/12) × 100. After conversion, factors were analyzed using mean and standard deviation, and the sample was categorized into the following score ranges: less than 25% (rarely); 25% to 49.9% (sometimes); 50% to 74.9% (frequently); 75% or more (always).

For anthropometric assessment, children were measured and weighed by the principal investigator in a private room provided by the facility. Weight was measured using a Balmark® scale with 200 kg capacity and 100 g increments, and height was measured using an Avanutri® stadiometer with a maximum measurement of 210 cm and 0.1 cm increments. Nutritional status was determined using the indices: weight-for-age, height-for-age, and BMI-for-age. Classification was based on z-scores according to parameters established by the World Health Organization[15] and calculated using the Anthro Plus software. Anthropometric measurements were obtained in accordance with recommendations of the Food and Nutrition Surveillance System (SISVAN)[16].

The study was approved by the Research Ethics Committee of Centro Universitário São Camilo under opinion No. 6,866,479, in accordance with Resolution No. 466 of December 12, 2012, of the National Health Council, which regulates research involving human subjects.

The initial sample size was calculated for a population of 102 children with ASD, with a 95% confidence level (Z = 1.96) and an expected proportion of 50% (p = 0.5). The final study sample included 52 children, resulting in a recalculated sampling error of 9.56%, which reduced the statistical power of the study and may limit the detection of significant associations between variables.

Data were analyzed using GraphPad Prism® software, version 10.4, adopting a significance level of 5% (p < 0.05). Initially, a descriptive analysis was conducted to characterize the sample, including calculation of absolute and relative frequencies for categorical variables, and measures of central tendency (mean) and dispersion (standard deviation) for continuous variables. Variable categorization was based on previously established cut-off points or on distributions observed in the dataset.

Normality of continuous variables was assessed using the Kolmogorov–Smirnov test. Associations between categorical variables were evaluated using Fisher's exact test or the chi-square (χ^2) test, as appropriate. The chi-square (χ^2) test for trend was employed for ordinal variables. For comparisons of continuous variables between two independent groups, the Mann–Whitney test was applied, whereas comparisons across three or more groups were performed using analysis of variance (ANOVA) followed by the Kruskal–Wallis test for nonparametric data.

To assess the correlation between the degree of food selectivity (high or low) and the sociodemographic variables investigated, a heatmap was constructed. The variables represented included the Intercept ($\beta0$), Age ($\beta1$), Sex ($\beta2$), Weight ($\beta3$), BMI ($\beta4$), Income ($\beta5$), and Parental Age ($\beta6$). Correlation values ranged from –1.0 (strong negative association) to 1.0 (strong positive association).

Additionally, multiple logistic regression analysis was performed to evaluate factors associated with the outcome of interest, adjusting the model for potential confounding variables. The reference category for the primary outcome — degree of food selectivity — was the low degree (occasionally, rarely, or never selective). The objective was to evaluate factors associated with the outcome of interest, namely a high degree of food selectivity (always or frequently selective), in comparison with a low degree.

Model adequacy was assessed using the Hosmer–Lemeshow goodness-of-fit test. The primary outcome (dependent variable) was the degree of food selecti-

vity (dichotomized as high vs. low), and the independent variables (exposure/adjustment) included age (years), sex (female vs. male), weight (kg), BMI, income (categorical: more than one minimum wage vs. up to one minimum wage), and parental age (years). Regression results were presented as regression coefficients (r), odds ratios (OR), and 95% confidence intervals (95% CI).

RESULTS

Table 1 presents the main characteristics of the participants included in the study, stratified by sex. Sociodemographic variables were analyzed, including children's age, parental age and educational level, and household income, as well as children's anthropometric measures such as weight, height, body mass index (BMI), weight-for-age, height-for-age, and BMI-for-age. In addition, the classification of food selectivity was assessed. No statistically significant differences were observed between boys and girls for any of the variables analyzed.

Table 1 - Sociodemographic and anthropometric characteristics of children with ASD, according to sex. Floriano/PI, 2024.

Parameters	Female (n=13)	Male (n=13)	Total (n=52)	p
Age (years) (mean ± SD)	7.54 ± 1.81	6.66 ± 1.99	6.88 ± 1.97	0.16
Parents' age (years) (mean ± SD)	35.08 ± 7.06	39.55 ± 9.52	38.49 ± 9.08	0.08
Parents' educational level % (n)				**0.58**[b]
Incomplete elementary school	29% (2)	18% (8)	19.2% (10)	
Complete elementary school	14% (1)	22% (10)	21.1% (11)	
Incomplete high school	14% (1)	4% (2)	5.7% (3)	
Complete high school	28% (2)	35% (16)	34.6% (18)	
Incomplete higher education	14% (1)	4% (2)	5.7% (3)	
Complete higher education	0% (0)	15% (7)	13.4% (7)	
Weight (kg)	25.55 ± 7.19	28.44 ± 11.91	27.75 ± 11.03	0.50
Height (cm)	118.8 ± 11.31	121.1 ± 11.03	120.5 ± 11.06	0.46
BMI (kg/m²)	17.89 ± 2.62	18.92 ± 5.29	18.66 ± 4.77	0.98
Income % (n)				**>0.99**[a]
Up to 1 minimum wage	21.1% (11)	63.4% (33)	84.6% (44)	
≥ 2 minimum wages	3.8% (2)	11.5% (6)	15.4% (8)	
Weight-for-age % (n)				**0.929**[b]
Very low weight	10.5% (4)	0% (0)	7.7% (4)	
Low weight	10.5% (4)	7.1% (1)	9.6% (5)	
Adequate	42.1% (16)	71.4% (10)	50% (26)	
High	36.9% (14)	21.4% (3)	32.7% (17)	
Height-for-age % (n)				**0.83**[c]
Low	15.4% (2)	15.3% (6)	15.3% (8)	
Adequate	84.6% (11)	82% (32)	82.6% (43)	
High	0% (0)	2.6% (1)	2% (1)	
BMI-for-age % (n)				**0.24**[c]
Severe thinness	0% (0)	2.6% (1)	1.9% (1)	
Thinness	7.7% (1)	10.3% (4)	9.6% (5)	
Adequate	69.2% (9)	43.6% (17)	50% (26)	
Overweight	15.4% (2)	10.3% (4)	11.5% (6)	
Obesity	0% (0)	15.4% (6)	11.5% (6)	
Severe obesity	7.7% (1)	17.9% (7)	15.3% (8)	

Parameters	Female (n=13)	Male (n=13)	Total (n=52)	p
Seletividade alimentar % (n)				0.24[c]
Always	46.1% (6)	48.7% (19)	48.1% (25)	
Frequently	23.1% (3)	30.8% (12)	28.8% (15)	
Occasionally	23.1% (3)	7.7% (3)	11.5% (6)	
Rarely	7.7% (1)	12.8% (5)	11.5% (6)	

Source: Authors, 2024. No significant differences were observed between females and males according to Student's t-test or the Mann–Whitney test (p > 0.05). [a]Fisher's exact test. [b]Chi-square test. [c]Chi-square test for trend.

The median age of the children analyzed was 7 years (first quartile = 6 years / third quartile = 8 years) for females and 6 years (first quartile = 5 years / third quartile = 7 years) for males. Median weight was 23 kg (first quartile = 21.5 kg / third quartile = 29.4 kg) for girls and 24.4 kg (first quartile = 21.4 kg / third quartile = 33.3 kg) for boys.

Regarding the main outcomes analyzed, a high prevalence of food selectivity was observed, with 76.9% of the children classified as always selective (48.1%) or frequently selective (28.8%), indicating a restricted eating pattern in most of the sample. Boys exhibited a higher frequency of "always" selective behavior (19 cases) and "frequently" selective behavior (12 cases) compared with girls (6 and 3 cases, respectively), indicating a greater concentration of high selectivity among boys (Figure 1).


$$\chi^2 = 0,46$$
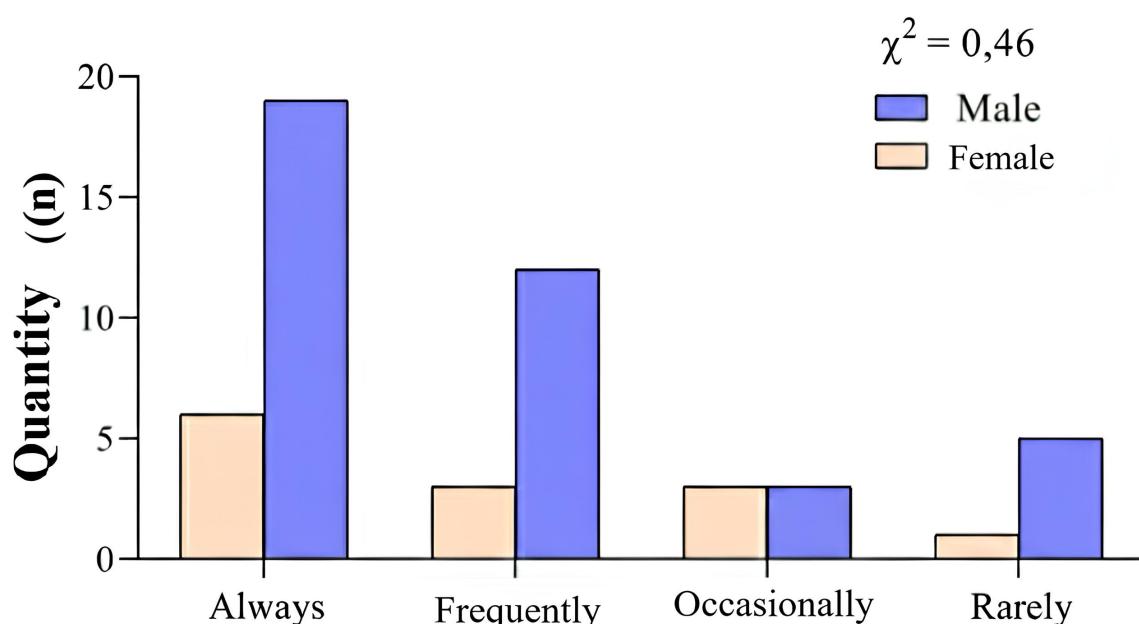
Figure 1 - Distribution of food selectivity by sex. Floriano/PI, 2024.

Regarding nutritional status, 50% of the children presented an age-appropriate BMI; however, the presence of excess weight was noteworthy, particularly among boys, who showed higher prevalences of obesity (15.4%) and severe obesity (17.9%) compared with the female group (Figure 2). With respect to weight-for-age, 32.7% were classified as having high weight, whereas 9.6% presented low weight.

For the height-for-age indicator, most children were classified as adequate (82.6%). These findings reinforce that, although a substantial portion of the sample maintained a normal nutritional status, there remains a significant proportion of children with excess weight and high food selectivity, highlighting the need for continuous monitoring and targeted interventions for this group.
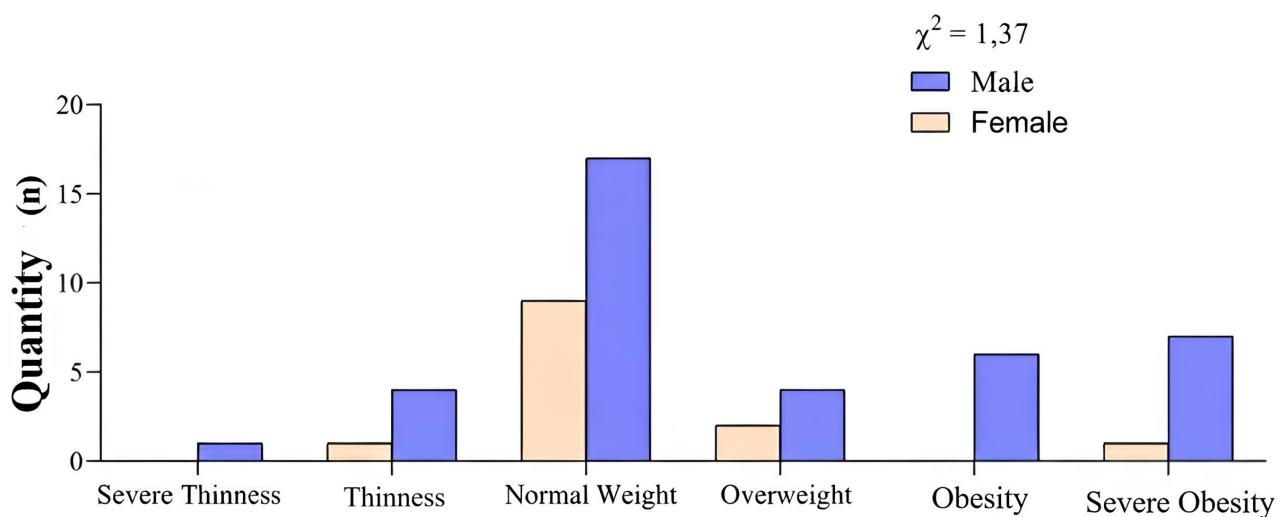
Figure 2 - Distribution of BMI categories according to sex. Floriano/PI, 2024.

Table 2 shows the analysis of parenting styles, in which the uninvolved (neglectful) style was the most frequent (55.8%), followed by the responsive (authoritative) style (34.6%), the indulgent (permissive) style (9.6%), and, finally, the controlling (authoritarian) style, which was not identified among participants (0%).

Table 2 - Distribution of parenting style frequencies. Floriano/PI, 2024.

Parenting styles	Female (n = 13)	Male (n = 39)	Total (n = 52)	p
Neglectful (Uninvolved)	38.4% (5)	61.5% (24)	55.8% (29)	0.33[b]
Responsive (Authoritative)	46.2% (6)	30.7% (12)	34.6% (18)	
Indulgent (Permissive)	15.4% (2)	7.6% (3)	9.6% (5)	
Controlling (Authoritarian)	0% (0)	0% (0)	0% (0)	

Fonte: Autoras, 2024. Valores não significativos (p>0,05). bTeste do Qui-quadrado.

Multicollinearity among the independent variables was assessed prior to the multiple logistic regression using the Variance Inflation Factor (VIF). All VIF values remained below 2, indicating no significant multicollinearity among the variables included in the model.

Figure 3 presents the odds ratios (OR) for the association between the degree of food selectivity and the variables investigated. None of the associations reached statistical significance, and no interaction effects were identified among the variables. Model fit was evaluated using the Hosmer–Lemeshow goodness-of-fit test (p = 0.633), indicating good adequacy of the logistic model.

Figure 3 provides a synthesis of the correlation and logistic regression results, showing that none of the models demonstrated statistical significance, and the Hosmer–Lemeshow test indicated good model fit (p = 0.633).

Variables	r (Correlation)	OR (Regression)	95% CI	p-value	Interpretation
Child's age	—	1.15	0.80–1.70	>0.05	No association with selectivity
Sex (ref.: male)	—	1.57	0.29–7.71	>0.05	Girls did not differ from boys
Weight (kg)	—	1.06	0.93–1.22	>0.05	No significant effect
BMI (kg/m²)	—	0.88	0.63–1.18	>0.05	No association with selectivity
Income (>1 minimum wage)	—	0.38	0.01–2.71	>0.05	No association
Parents' age	—	1.02	0.93–1.11	>0.05	No significant effect
Parents' age	No significant correlation	—	—	—	—

Source: Authors, 2024. Non-significant values according to multiple logistic regression, with hypothesis testing using the Hosmer–Lemeshow goodness-of-fit test (p = 0.633).

Figure 3 - Summary of correlation and logistic regression results. Floriano/PI, 2024.

Figure 4 represents the heatmap summarizing the association between the degree of food selectivity — high or low — and the study variables [β_0 – Intercept; β_1 – Age (years); β_2 – Sex (categorical); β_3 – Weight (kg); β_4 – BMI (kg/m^2); β_5 – Income (categorical); β_6 – Parents' age (years)]. Correlation values are displayed in the graph, and no interaction was identified among the variables ($p > 0.05$).
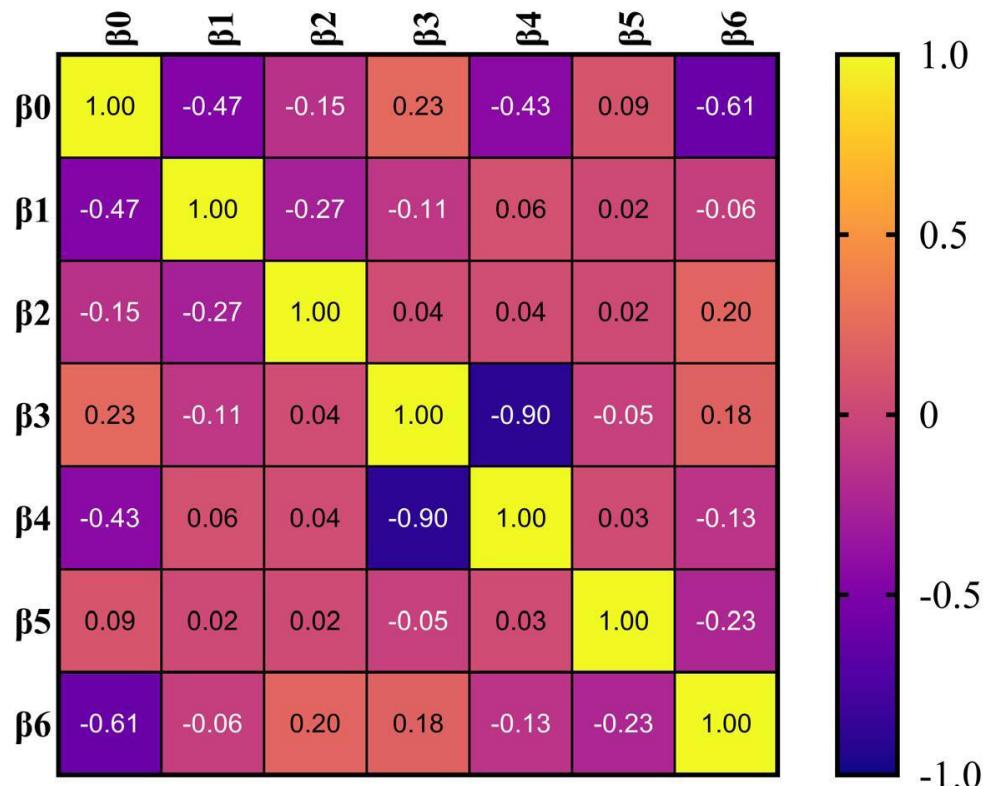

Figure 4 - Heatmap of the association between the degree of food selectivity and sociodemographic variables.

Non-significant values according to multiple logistic regression, with hypothesis testing using the Hosmer–Lemeshow goodness-of-fit test ($p = 0.633$).

DISCUSSION

The results of this study allowed for an analysis of the relationship among parenting styles, food selectivity, and the nutritional status of children with ASD. According to the literature reviewed to date, this appears to be the first study to apply the QEPA questionnaire[13] with caregivers of children with ASD. Among the 52 participating children, most were male, which is consistent with the literature indicating a higher prevalence of ASD in boys[3,5].

In this study, food selectivity was prevalent, with most children classified as "always selective" or "frequently selective." These findings indicate that the majority presented a restricted dietary pattern, limited to the intake of few food groups.

Regarding the presence of food selectivity in children with ASD, several studies report results similar to those observed here[2,17,18]. Sharp et al.[17], for instance, identified severe food selectivity in children with ASD, characterized by frequent refusal of all vegetables followed by all fruits.

In this context, it is essential to emphasize the importance of nutritional care and follow-up, particularly for children with ASD who exhibit food selectivity[18]. Parents require support to meet their children's needs, and this is an essential aspect to be considered not only at the time of diagnosis but throughout the entire course of care for individuals with ASD[19]. Thus, it is crucial to analyze parenting styles that influence children's eating behaviors, which are shaped not only by parental concerns

but also by the children's characteristics[20].

In this study, the uninvolved (neglectful) style was the most prevalent. This finding is consistent with Portes et al.[21], who also identified a predominance of this style among families of children with ASD, suggesting a possible relationship between low parental supervision and difficulties in developing adequate eating habits. Moreover, this result reinforces the hypothesis that the uninvolved parenting style may intensify food selectivity patterns, a finding still scarcely described in national literature.

Conversely, the responsive (authoritative) parenting style has been associated with better levels of coparenting and lower rates of conflict among caregivers[22]. In an Indonesian study, parents of children with ASD were classified as more authoritarian[23]. This parenting style appears to play a protective role regarding childhood overweight[23]. The literature highlights that responsive parents promote greater acceptance of varied foods and lower food selectivity[24].

The permissive parenting style may be associated with fewer imposed limits, allowing the child greater autonomy in food choices[21]. In the present study, this style may be related to parents' difficulties in managing food selectivity, creating an environment where the child exercises greater authority over their dietary decisions.

Behavioral challenges may increase parental stress, affecting their ability to sustain responsive practices over time[21]. This scenario may directly influence feeding-related parenting styles, favoring, for example, more permissive or neglectful practices. It is worth noting that, to date, the literature has offered limited exploration of the QEPA[13] in this population; however, the questionnaire contributed to expanding knowledge about how parenting styles affect the eating behavior of these children.

The relationship between food selectivity and the nutritional status of children with ASD is complex and has been the focus of numerous studies[25,26,27,28]. Some research indicates that despite restricted diets, many children with ASD maintain adequate weight for their age. For example, a study of 34 children aged 3 to 10 years with ASD found that 73.53% were classified as having adequate weight, even when presenting repetitive eating patterns[29]. These data are also consistent with Assunção et al.[30], which aimed to correlate nutritional status, sociodemographic data, and eating behavior in children with ASD. In that study involving 30 children aged 3 to 11 years, most were classified as eutrophic, indicating a healthy weight relative to height[30].

In the present study, analysis of BMI-for-age showed that most children exhibited adequate nutritional status, despite some cases of thinness. However, cases of overweight and obesity were also observed, particularly among boys. These findings are similar to a study that evaluated nutritional status and food intake of children with ASD and found a similar distribution regarding overweight risk[28]. Parents of girls tend to express greater concern about diet and weight, which may lead to stricter regulation of food intake and possibly lower obesity rates in this group[31].

Regarding income, most families in this sample had a household income of up to one minimum wage. This finding is similar to other studies conducted in different regions of Brazil with children and adolescents with ASD. For instance, a study in Paraíba also showed that most participating families were within this income range[21]. In Pelotas, a city in Rio Grande do Sul, 44.4% of families fell within this income bracket, and no significant association was found between food selectivity and nutritional status (p = 0.5), nor between household income and food selectivity (p = 0.4)[18].

Although household income is often associated with food insecurity and limited access to diverse foods, food selectivity must be investigated through sensory and behavioral factors that may transcend socioeconomic conditions[25]. However, it is important to note that limited financial resources and a lack of information on strategies to manage food selectivity may lead to caregiver exhaustion, causing them to yield to the child's food preferences[28].

Most parents had incomplete elementary education, while complete higher education was less frequent. Educational level may be related to better feeding practices, as caregivers with higher educational attainment tend to adopt strategies that promote greater food variety[8]. Thus, another essential aspect would be the implementation of food and nutrition education programs for caregivers, aiming to provide practical guidance on how to manage food selectivity and gradually introduce new foods, regardless of the family's socioeconomic condition.

In the present study, it is important to highlight that the multidisciplinary team did not include a nutritionist, and the presence of such a professional would likely contribute to mitigating food selectivity, which was present in most of the evaluated children. Nutrition education for children is strongly related to the availability of foods at home, and

nutritionists, when working closely with families, can provide support to promote the importance of consuming a variety of foods[8].

The main limitation of this study was the reduced sample size, which may have affected the ability to detect statistically significant associations among the variables analyzed. The initially calculated sample size could not be achieved due to difficulties within the healthcare service. Many children did not have a formal ASD diagnosis at the outset. Additionally, the study site began to restrict services to children residing only within the municipality. Another relevant factor was that the city had only one pediatric neurologist to meet a high demand for evaluations. As a result, many cases were still under diagnostic investigation and could

not be included during the data collection period. Nonetheless, this does not indicate the absence of real associations between parenting style, food selectivity, and nutritional status; rather, it may be attributed solely to the small sample size.

Other limitations observed in this study include the self-report nature of parental responses, which may contain errors or inconsistencies, and the lack of control for comorbidities.

Despite these limitations, the findings of this study may be useful for health professionals, as they reinforce the importance of understanding the caregivers involved in the child's feeding process and the factors that may be associated with food selectivity, as well as the need for greater attention to the child's nutritional profile.

CONCLUSION

It can be concluded that the uninvolved parenting style was the most prevalent among caregivers of children with ASD and was associated with high levels of food selectivity. Although most children presented an adequate nutritional status, the presence of overweight among boys indicates the need for continuous monitoring. Future studies with larger samples are recommended to explore educational interventions directed toward parents in order to improve eating habits and the nutritional well-being of this population.

CRediT author statement

Conceptualization: Gonzaga, AL; Castro, AGP; Corrêa, FF. Methodology: Gonzaga, AL; Castro, AGP; Corrêa, FF. Validation: Gonzaga, AL; Castro, AGP; Corrêa, FF. Statistical Analysis: Gonzaga, AL; Castro, AGP; Corrêa, FF. Formal Analysis: Gonzaga, AL; Castro, AGP; Corrêa, FF. Investigation: Gonzaga, AL. Resources: Gonzaga, AL; Castro, AGP; Corrêa, FF. Writing – Original Draft: Gonzaga, AL; Castro, AGP; Corrêa, FF. Writing – Review & Editing: Gonzaga, AL; Castro, AGP; Corrêa, FF. Visualization: Gonzaga, AL; Castro, AGP; Corrêa, FF. Supervision: Castro, AGP; Fernanda Ferreira Corrêa. Project Administration: Gonzaga, AL; Castro, AGP; Corrêa, FF.

All authors have read and agreed to the published version of the manuscript.

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TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO AOS PAIS OU RESPONSÁVEIS

<u>INFORMAÇÕES SOBRE A PESQUISA:</u>

TÍTULO DA PESQUISA: A INFLUÊNCIA DOS ESTILOS PARENTAIS NA SELETIVIDADE ALIMENTAR DECRIANÇAS DIAGNOSTICADAS COM TRANSTORNO DO ESPECTRO AUTISTA

Pesquisadora Responsável: Ana Luiza Gonzaga

Prezado(a) Senhor(a)

Por meio deste documento, você está sendo convidado(a) para participar, como voluntário, desta pesquisa. Após ser esclarecido(a) sobre as informações nesse documento, no caso de aceitar fazer parte do estudo, você irá acessar um formulário do Google Forms e será necessário que responda alguns dados. A pesquisadora responsável estará disponível para responder todas as dúvidas.

Descrição e objetivo da pesquisa: Crianças com TEA têm maior risco de apresentarseletividade alimentar. O modo como os cuidadores conduzem a hora da refeição pode influenciar, a alimentação da criança, portanto queremos conhecer as práticas frequentementeutilizadas pelos pais durante a alimentação.

Procedimento: Esta pesquisa consiste em pesar e medir a altura do seu filho e coletar suas respostas por meio de um questionário eletrônico (pode ser respondido pelo celular, tablete ouno computador), aproximadamente 30 minutos, com intuito de conhecer a presença ou ausência de seletividade alimentar e práticas alimentares. Caso seu filho apresente baixo peso ou esteja acima do peso, a pesquisadora responsável fará tratamento nutricional pelo tempo que for preciso. Para efeito de caracterização das crianças, no período de duração da pesquisa,será coletado no sistema de prontuário fornecido pela equipe o diagnóstico clínico da criança que confirme o TEA pela neuropediatra. Caso o senhor(a) aceite participar é necessário sua assinatura e depois irie disponibilizar um link com o questionário eletrônico. Irei lhe entregar uma via do TCLE e a outra ficará com a pesquisadora.

Benefícios: As informações obtidas nessa pesquisa serão de grande valia para o desenvolvimento e aperfeiçoamento do conhecimento das dificuldades alimentares das crianças, prática alimentar de pais e mães, o benefício para você e a criança por quem você éresponsável é indireto, mas vai ajudar, por meio dos resultados, a conhecer melhor a relação da criança com TEA em seus aspectos alimentares e nutricionais.

Riscos: Esta pesquisa apresenta riscos mínimos, a criança pode apenas sentir um possível desconforto durante a tomada de medida, peso, altura. Todos os procedimentos são indolores.A pesquisadora interromperá o processo a qualquer momento, se a criança pedir. Da mesma forma esta pesquisa apresenta riscos mínimos para o responsável, diante da possibilidade delhe causar desconforto ou cansaço ao responder às perguntas do questionário apresentado, para minimizar esses riscos o questionário é bem direcionado e fácil de responder, mas se vocêdesistir de responder, seus dados não serão usados.

Rubrica do Participante: ------------------------------------

Rubrica do Pesquisador: ------------------------------------

Sigilo: Todas as informações fornecidas serão confidenciais e de conhecimento apenas da pesquisadora responsável e serão usados somente para essa pesquisa. Os participantes da pesquisa não serão identificados em nenhum momento da pesquisa, e os dados serão analisados em grupo. A pesquisadora se compromete a guardar os dados obtidos por cinco anos e os resultados obtidos poderão ser apresentados em eventos e publicações científicas, sempre sem sua identificação e da criança que irá participar.

Pesquisadora responsável: Caso você tenha alguma dúvida poderá entrar em contato com Ana Luiza Gonzaga, contato: (89) 9.9408-0657 ou pelo e-mail: anny-gonzaga@hotmail.com. Se você tiver alguma consideração ou dúvida sobre a ética dessa pesquisa, entre em contato com o Comitê de Ética em Pesquisa - CoEP no e-mail coep@saocamilo-sp.br ou telefone (11) 3465- 2654. Horário de atendimento às segundas e quintas-feiras das 8h às 14h. Terças, quartas e sextas-feiras das 8h às 16h.Informações em https://saocamilo-sp.br/extensao/coep.

Você não receberá gratificação financeira ou algum tipo de remuneração por participar deste estudo, todos os gastos serão de responsabilidade da pesquisadora responsável. Caso ocorra algum gasto por causa dessa pesquisa, você receberá o ressarcimento devido.

Você terá direito de requerer indenização (reparação a danos imediatos ou futuros), garantida em lei, decorrentes de sua participação na pesquisa.

Concordo que recebi todas as informações sobre o projeto de pesquisa de forma clara e completa e que minhas perguntas foram respondidas satisfatoriamente. Tenho conhecimento de que posso desistir da minha participação a qualquer momento.

Aceito   Não aceito

Floriano-PI,. . . . . .de. . . . . .de . . . .

Colocando-nos à sua disposição para quaisquer esclarecimentos, agradecemos a suacolaboração.

Rubrica do Participante: -----------------------------------

Rubrica do Pesquisador: -----------------------------------

TERMO DE ASSENTIMENTO LIVRE E ESCLARECIDO (TALE) - crianças alfabetiza-das

Resolução (510/2016- CNS)

Fonte: produzido pelas autoras (2024).

TERMO DE ASSENTIMENTO LIVRE E ESCLARECIDO (TALE) - crianças não alfabetizadas

Resolução (510/2016- CNS)
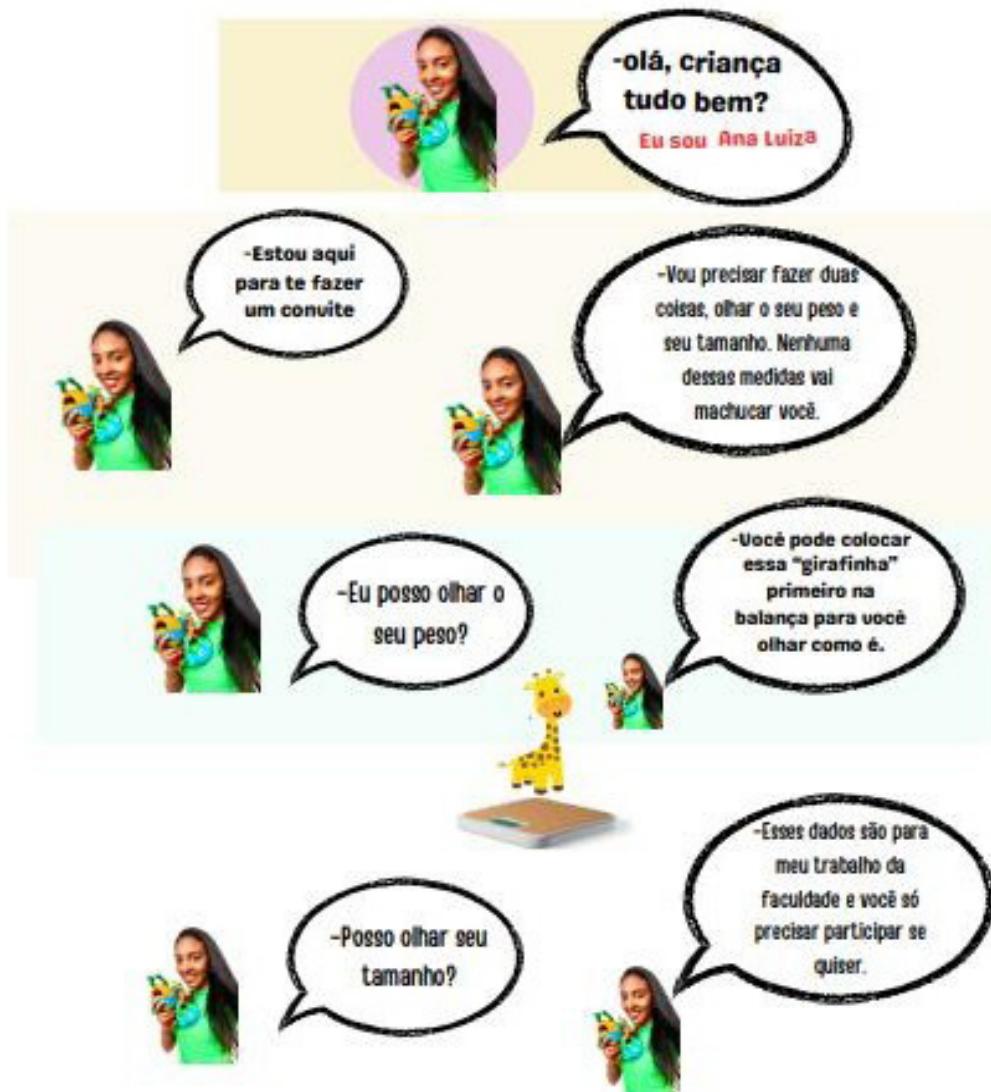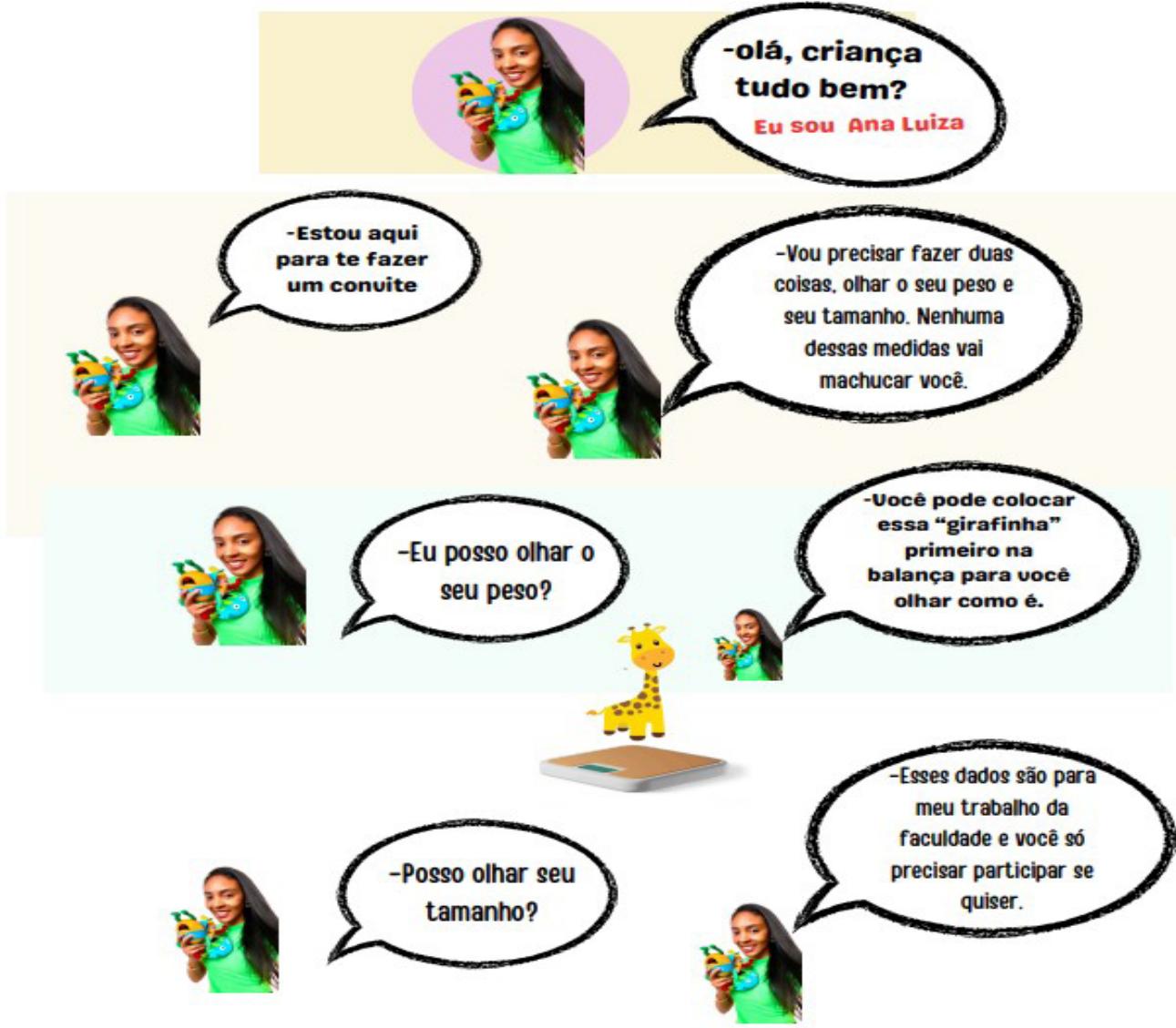
Se você aceitar participar pode circular essa gravura

Nome da Pesquisadora:_____

Floriano-PI-----/-----/------

Página 1 de 1

Supplementary Material 2

QUESTIONÁRIO DE ESTILOS PARENTAIS NA ALIMENTAÇÃO (QEPA)

	Inglês	Português
	How often during the dinner meal do you …	Quantas vezes durante a refeição você:
1	*Physically struggle with the child to get him or her to eat (for example, physically putting the child in the chair so he or she will eat).*	Usa de força física com a criança para que ela coma (por exemplo, fazendo com que a criança fique na cadeira para comer).
2	*Promise the child something other than food if he or she eats (for example, "If you eat your beans, we can play ball after dinner").*	Promete algo à criança, que não seja comida, como recompensa por comer (por exemplo, "se você comer o feijão, podemos jogar bola depois do almoço").
3	*Encourage the child to eat by arranging the food to make it more interesting (for example, making smiley faces on the pancakes).*	Incentiva a criança a comer, "enfeitando" a comida para torná-la mais interessante (por exemplo, fazendo figuras/desenhos com os legumes ou verduras).
4	*Ask the child questions about the food during dinner.*	Faz perguntas para a criança sobre a comida, durante a refeição (por exemplo, pergunta à criança se a comida está gostosa).
5	*Tell the child to eat at least a little bit of food on his or her plate.*	Pede para a criança comer, pelo menos, um pouco da comida que está no prato.
6	*Reason with the child to get him or her to eat (for example, "Milk is good for your health because it will make you strong").*	Explica os benefícios da comida para que a criança coma (por exemplo, "o leite é bom para a sua saúde, porque ele vai fazer você ficar forte").
7	*Say something to show your disapproval of the child for not eating dinner.*	Diz algo à criança que demonstre a sua desaprovação pelo fato dela não ter comido a refeição.
8	*Allow the child to choose the foods he or she wants to eat for dinner from foods already prepared.*	Permite que a criança escolha o que ela quer comer na refeição, entre os alimentos que já estão servidos.
9	*Compliment the child for eating food (for example, "What a good boy! You're eating your beans").*	Elogia a criança quando ela come (por exemplo, "Que menino(a) legal! Você está comendo o seu feijão!").
10	*Suggest to the child that he or she eats dinner, for example by saying, "Your dinner is getting cold.*	Sugere que a criança coma, dizendo, por exemplo, "a comida está esfriando".
11	*Say to the child "Hurry up and eat your food".*	Apressa a criança no momento da refeição (por exemplo, fala para a criança: "Vamos mais rápido, coma logo a sua comida").
12	*Warn the child that you will take away something other than food if he or she doesn't eat (for example, "If you don't finish your meat, there will be no play time after dinner").*	Diz para a criança que irá tirar alguma coisa dela, se ela não comer a comida (por exemplo, "Se você não comer a comida não vai brincar depois do jantar").
13	*Tell the child to eat something on the plate (for example, "Eat your beans").*	Diz para a criança comer algum dos alimentos que está no prato (por exemplo, "coma o macarrão").
14	*Warn the child that you will take a food away if the child doesn't eat (for example, "If you don't finish your vegetables, you won't get fruit").*	Avisa a criança que vai tirar dela algum alimento se ela não comer a refeição (por exemplo, "Se você não comer, você não vai ganhar a sobremesa").
15	*Say something positive about the food the child is eating during dinner.*	Diz alguma coisa positiva sobre a comida que a criança está comendo, durante a refeição (por exemplo, "como está gostoso o arroz").
16	*Spoon-feed the child to get him or her to eat dinner.*	Dá comida na boca da criança para que ela coma a refeição.
17	*Help the child to eat dinner (for example, cutting the food into smaller pieces).*	Ajuda a criança a comer durante a refeição (por exemplo, cortando o alimento em pedaços menores).
18	*Encourage the child to eat something by using food as a reward (for example, "If you finish your vegetables, you will get some fruit").*	Incentiva a criança a comer usando outros alimentos como recompensa (por exemplo: "Se você comer, você vai ganhar a sobremesa").
19	*Beg the child to eat dinner.*	Implora para que a criança coma a refeição.

Fonte: Cauduro, Reppold e Pacheco (2017).

Supplementary Material 3

ESCALA LABIRINTO DO COMPORTAMENTO ALIMENTAR DO TEA

(SELETIVIDADE ALIMENTAR)

Escala LABIRINTO de Avaliação do Comportamento Alimentar no TEA	Não	Raramente	Às vezes	Frequentemente	Sempre
1. Dificuldades para mastigar os alimentos	0	1	2	3	4
2. Engole os alimentos sem mastigá-los o bastante	0	1	2	3	4
3. Dificuldade para levar o alimento de um lado para o outro da boca com a língua	0	1	2	3	4
4. Mastiga os alimentos com a boca aberta	0	1	2	3	4
5. Evita comer vegetais cozidos e/ou crus	0	1	2	3	4
6. Retira o tempero da comida (ex.: pedaços de coentro, cebolinha ou tomate)	0	1	2	3	4
7. Evita comer frutas	0	1	2	3	4
8. Possui inquietação/agitação motora que dificulta sentar-se à mesa	0	1	2	3	4
9. Tem dificuldades de sentar-se à mesa para fazer as refeições (ex.: almoça no chão, sofá, cama)	0	1	2	3	4
10. Tem dificuldades de utilizar os talheres e outros utensílios	0	1	2	3	4
11. Derrama muito a comida na mesa ou na roupa quando se alimenta	0	1	2	3	4
12. Bebe, come, lambe substâncias ou objetos estranhos (ex.: sabão, terra, plástico, chiclete)	0	1	2	3	4
13. Vomita, durante ou imediatamente após as refeições	0	1	2	3	4
14. Durante ou imediatamente após as refeições, golfa (trazendo de volta o alimento que engoliu à boca) e mastiga o alimento novamente	0	1	2	3	4
15. Come sempre com os mesmos utensílios (ex.: o mesmo prato, garfo, colher ou copo)	0	1	2	3	4
16. Come sempre no mesmo lugar	0	1	2	3	4
17. Quer comer sempre os mesmos alimentos (ex.: se comeu frango hoje, quer amanhã novamente)	0	1	2	3	4
18. Quer comer alimentos com cor semelhante (ex.: somente quer sucos amarelos – manga, maracujá, laranja)	0	1	2	3	4
19. Quer comer alimentos sempre da mesma marca, embalagem ou personagem (ex.: bebe suco somente de caixinha, quer somente produtos do Bob Esponja)	0	1	2	3	4
20. Possui ritual para comer (ex.: os alimentos devem ser arrumados no prato da mesma forma; se o ritual não for obedecido, seu filho se recusa a comer ou fica irritado ou perturbado)	0	1	2	3	4
21. Sem permissão, pega a comida fora do horário das refeições	0	1	2	3	4
22. Sem permissão, pega a comida de outras pessoas durante as refeições	0	1	2	3	4
23. Come uma grande quantidade de alimento num período de tempo curto)	0	1	2	3	4
24. Intolerância ao glúten (o glúten está presente na farinha de trigo, aveia, centeio e cevada)	0	1	2	3	4
25. Alergia alimentar (ex.: amendoim, frutos do mar)	0	1	2	3	4
26. Tem intolerância à lactose	0	1	2	3	4

Comentários Adicionais: _____
_____

Soma dos Fatores

Fatores da Escala	Itens	Total
Fator 1: Motricidade na Mastigação	1:___2:___3:___4:___	—
Fator 2: Seletividade Alimentar	5:___6:___7:___	—
Fator 3: Habilidades nas Refeições	8:___9:___10:___11:___12:___	—
Fator 4: Comportamento Inadequado relacionado às Refeições	13:___14:___	—
Fator 5: Comportamentos Rígidos relacionados à Alimentação	15:___16:___17:___18:___19:___20:___	—
Fator 6: Comportamento Opositor relacionado à Alimentação	21:___22:___23:___	—
Fator 7: Alergias e Intolerância Alimentar	24:___25:___26:___	—

Fonte: Lázaro, Siquara e Pondé (2019)