

Parental feeding practices and ultra-processed food consumption in preschool children

Práticas alimentares parentais e consumo de alimentos ultraprocessados em pré-escolares

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ABSTRACT

Objective

To investigate the association between parental feeding practices and the consumption of ultra-processed foods in preschool children.

Methods

Cross-sectional study with 140 parents (father and mother) and their children (2-6 year-old). Parental feeding practices were assessed using the Comprehensive Feeding Practices Questionnaire. Children's body weight and height were measured, and body mass index z-score per age was calculated. Parental anthropometric measurements (body weight and height) were obtained by self-report, and body mass index was calculated. The consumption of ultra-processed foods was assessed through the Child Food Frequency Questionnaire and the daily intake score was calculated. Multivariable linear regression analyses were performed to investigate the association between parental feeding practices and the consumption of ultra-processed foods.

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Results

Children's ultra-processed food consumption was negatively associated with the "Monitoring" parental feeding practices. On the other hand, "Emotion Regulation" and "Health restriction" parental feeding practices were positively associated with the ultra-processed food consumption score.

Conclusion

Ultra-processed food consumption was associated to the "Monitoring", "Emotion regulation" and "Health restriction" parental feeding practices in preschool children. These results support the importance of using successful parental feeding practices to promote healthy eating in preschoolers.

Keywords: Food intake. Child nutrition. Parenting. Preschool children. Ultra-processed foods.

RESUMO

Objetivo

O estudo buscou investigar a associação entre as práticas alimentares parentais e o consumo de alimentos ultraprocessados em crianças pré-escolares.

Métodos

Estudo transversal realizado com 140 pares de pais e crianças de 2 a 6 anos de idade. As práticas parentais foram avaliadas pelo questionário Comprehensive Feeding Practices Questionnaire. O peso e a estatura das crianças foram aferidos e o escore z de índice de massa corporal para idade, calculado. A avaliação antropométrica dos pais foi realizada por meio do autorrelato de peso e altura e cálculo do índice de massa corporal. O consumo de alimentos ultraprocessados foi avaliado pelo Questionário de Frequência Alimentar da Criança e pelo cálculo de escore de consumo diário. Realizaram-se análises de regressão linear múltipla para avaliar a associação entre as práticas alimentares parentais e o consumo de alimentos ultraprocessados.

Resultados

O consumo de alimentos ultraprocessados pelas crianças associou-se negativamente à prática parental de "Monitoramento". Por outro lado, as práticas alimentares parentais de "Regulação da emoção" e "Restrição para saúde" associaram-se positivamente ao escore de consumo de alimentos ultraprocessados.

Conclusão

Conclui-se que o consumo de alimentos ultraprocessados por crianças pré-escolares relacionou-se às práticas alimentares parentais de "Monitoramento", "Regulação da emoção" e "Restrição para saúde". Esses resultados ressaltam a importância do uso de práticas alimentares parentais com desfecho positivo para a promoção de uma alimentação saudável em pré-escolares.

Palavras-chave: *Ingestão de alimentos. Nutrição da criança. Relação parental. Pré-escolar. Alimentos ultraprocessados.*

INTRODUCTION

Ultra-processed foods are substance formulations obtained through the fractionation of *in natura* or minimally processed foods. Ultra-processed foods have undergone a high degree of processing and to which salt, fat, sugar, dyes, flavorings, emulsifiers, thickeners, and many other chemicals were added. Many of such additives are used solely by the food industry [1].

The consumption of ultra-processed foods has a relevant impact on the caloric intake of children, representing about 18% to 44% of the total energy value of preschool food in Latin America. The consumption of ultra-processed foods is associated with a diet with higher sugar content, higher energy density, lower fiber consumption, and an increased incidence of obesity in this age group [2].

It is known that the development of eating habits occurs in childhood. In the preschool phase, eating behavior is learned and evolves, influenced by maturation, socialization agents, genetic aspects, affective factors, and the child's interaction with the family and with food. It appears that at this stage of life, the

family factor exerts a strong influence on the development of the children's eating behavior, enhancing the importance of parental feeding practices on child nutrition [3].

Parental feeding practices consist of parental behavior strategies, which may employ food restriction, use food as a form of reward, warnings, advice, and control over the frequency, time and type of food ingested by children [4]. Such practices can have a positive or negative impact on children's eating habits and health [5]. While the "Monitoring" parental practice seems to be associated with lower consumption of sweets and fast foods, the "Restriction" of specific foods, such as candies and packed snacks, can have an untoward effect, increasing the child's preference for such foods when available [6,7].

Although the consumption of ultra-processed foods has been widely studied [2,8-10], few studies show the association between parental feeding practices and the consumption of ultra-processed foods in preschool age [11,12]. Identifying the modifiable factors that influence eating habits at this stage is essential for the formulation of public policies and the application of food and nutrition education strategies that aim at health promotion and disease prevention [13]. In this connection, this study aimed to investigate the association between parental feeding practices and consumption of ultra-processed foods in preschool children.

METHODS

This is a cross-sectional study with children between two and six years of age, enrolled in public and private schools in the cities of *São José dos Campos* (SP) and *Santana do Parnaíba* (SP), Brazil. Data collection took place in two public schools and in two private schools.

The sample size was previously calculated using the G POWER 3.1 program (Universitat Dusseldorf: Psychologie, Germany), considering an effect size of 0.1, a power (Beta error) of 80% and a significance level (alpha error) of 5%. In view of the established values, a sample size of 134 children was obtained. At the end of the study, data collection was performed with 154 parents (father and mother) and children.

The exclusion criteria included children with food allergy, kidney disease, celiac disease, type 1 diabetes mellitus and any type of disease that restricted food. Fourteen participants who met the exclusion criteria or who did not completely respond to the questionnaires were excluded. Thus the sample included 140 pairs of parents (father and mother) and their children. Parents with two or more children with the same age as the survey age group and enrolled in schools were instructed to only answer the questionnaire referring only to the oldest child.

The research project was approved by the Research Ethics Committee of *Centro Universitário São Camilo*, under nº 2,690,043/2018 and followed the terms of Resolution nº 510/2016, of the *Conselho Nacional de Saúde* (National Health Council) [14].

Parental feeding practices were measured by applying the Comprehensive Feeding Practices Questionnaire, proposed by Musher-Eizenman and Holub [15], that was translated and validated in Brazil by Warkentin *et al.* [16]. According to the validation study, the translation, adaptation and factor analysis resulted in a questionnaire with 42 items distributed in six factors, with satisfactory internal consistency (Cronbach's alpha between 0.74 and 0.88). The test-retest reliability evaluation showed satisfactory intra-class correlation values, which ranged from 0.42 to 0.81 [16].

The questionnaire was completed by the child's guardian and each question was to be answered on a Likert-type scale, ranging from one to five, from "never" to "always" or from "totally disagree" to "totally agree". The six feeding parenting practices evaluated are described in Chart 1.

Chart 1 - Parental feeding practices.

Parental feeding practices	Description
Guidance for healthy eating	Describes parenting facilitation of a healthy feeding environment, including teaching, modeling, and engaging in food intake.
Monitoring	Describes the degree to which parents maintain control over their child's consumption of unhealthy foods.
Restriction for weight control	Assesses how much parents restrict their child's food intake to control weight gain.
Restriction for health purpose	Assesses how parents restrict their child's food intake, but with a focus on healthy eating and health.
Regulation of emotion/food as reward	Determines how much parents use food as a reward for their child's desired behavior, or to regulate emotion.
Pressure to eat	Investigates how much the parents pressure the child to eat.

Source: Warkentin *et al.* [16].

The child's food consumption was assessed using the Child Food Frequency Questionnaire completed by the child's guardians, developed and validated by Colucci *et al.* [17]. This original questionnaire contains 57 food items and seven categories of consumption frequency: never, less than once a month, 1 to 3 times a month, once a week, 2 to 4 times a week, once a day, 2 or more times a day

Based on the consumption frequency categories, the consumption score of each food was calculated following the Fornés *et al.* [18] study, to convert the annual food consumption into daily consumption. In order to evaluate the frequency of food consumption as a quantitative variable, a weight was assigned to each category of consumption frequency, based on the frequency of daily consumption. The value 1 was considered as weight for daily consumption, and the other categories were converted into a score using the following equation: $(1/365) \times [(a+b)/2]$, where a and b represent the number of days of minimum and maximum annual consumption, respectively, of the food in the year. For example, for a food consumed 1 to 3 times a month, there is consumption between 12 (a) and 36 (b) days a year and a score of approximately 0.07 ($1/365 \times [12+36/2]$). In this way, the values of consumption scores for each food ranged from 0 to 1. The higher score represents a greater child's consumption frequency of that food.

The items of the food frequency questionnaire were reviewed based on the NOVA classification, which separates foods into four categories according to the level of processing: *in natura* or minimally processed foods, culinary ingredients, processed foods and ultra-processed foods and beverages [1]. In this study, the variable of interest, that is, the dependent variable was the consumption score of ultra-processed foods. In this category, fifteen ultra-processed foods and beverages were evaluated, including: cookies without filling, cookies with filling, breakfast cereal, instant noodles, chocolate powder beverage, chocolate/candy, packaged snacks/potato chips, fruit yogurt, *petit-suisse* cheese, fermented milk, cream cheese, sausage, ham/baloney, soda and artificial juice. The consumption score of ultra-processed foods was generated by the sum of the consumption score values of the fifteen items belonging to this group. The sum of the score for consumption of ultra-processed foods ranged from 0 to 15, and the higher the score, the greater the consumption of ultra-processed foods.

To determine the sample profile, questions were asked regarding the sociodemographic characteristics of the family, guardians' age and education and child with diseases. The socioeconomic status of the family was estimated using the *Critério de Classificação Econômica Brasil* (CCEB, Brazilian Economic Classification Criteria), established by the *Associação Brasileira de Empresas de Pesquisas* (ABEP, Brazilian Association of Research Companies). The CCEB demonstrates the consumption potential of Brazilian households, and is based on questions regarding possession of assets, access to public services, schooling and the services of a maid. This questionnaire classifies the population into six socioeconomic strata called A, B1, B2, C1, C2 and D-E [19].

The anthropometric assessment of children was carried out at school, measuring weight and height. The children were weighed wearing light clothes and without shoes on a properly calibrated electronic digital Seca® Scale (*Seca Brasil, São Paulo/SP*) with a 150kg capacity and 100g precision. Height was measured using a portable Seca®, stadiometer, with a millimeter scale. Weight and height data were used to calculate the Body Mass Index (BMI). The children's nutritional status was assessed using the z-score of the BMI anthropometric index for age. Data were assessed according to the cutoff points proposed by the World Health Organization (WHO) for children with the help of the WHO Anthro and WHO Anthro Plus software [20].

Self-reported data on weight and height of one of the child's parents were also collected, for calculation of the BMI. Parental BMI classification followed the WHO standard for adults [21].

The description of numerical variables was performed through descriptive analysis of mean and Standard Deviation (SD). The description of categorical variables was performed using absolute (n) and relative (%) values. A multiple linear regression model was applied, adopting the consumption score of ultra-processed foods as the dependent variable of the model. The consumption scores of ultra-processed foods were transformed into square roots to meet the requirement of normality of the linear regression test residues [22]. The independent variables used were parental feeding practices and the covariates were age of guardian, years of guardians' schooling, BMI for age and children gender. The choice of covariates was based on previously published studies [23-25]. For the linear regression analysis, the following test assumptions were evaluated: normality of residuals (Shapiro-Wilk, $p>0.05$), absence of multicollinearity (Inflation Factors of Variance – $VIF<10$), and interdependence of residuals (Durbin-Watson test, between 1.5 and 2.5). Statistical analysis was performed using the JASP software (version 0.15.2), and considering a significance level of $p<0.05$.

RESULTS

In the parents' sample, the mean age was 30.5 years and most guardians belonged to class C (62.1%) and were female (92.9%). Their BMI indicated that 42.4% were overweight and 16.4% were obese, totaling 58.8% of overweight guardians (Table 1).

Table 1 – Sociodemographic, socioeconomic and nutritional status of preschool children and their parents (n=140 binomials) in *São José dos Campos* (SP) and *Santana de Parnaíba* (SP), Brazil, 2018.

1 of 2		
Parents characteristics	M	SD
Age (years)	30.5	7.1
Education (years)	12.9	2.1
Body Mass Index	26.4	4.5
	n	%
Gender		
Female	130	92.9
Male	10	7.1
Social class (Brazil Criterion) ^a		
A	3	2.1
B1	5	3.6
B2	41	29.3
C1	51	36.4
C2	36	25.7
D-E	4	2.9

Table 1 – Sociodemographic, socioeconomic and nutritional status of preschool children and their parents (n=140 binomials) in São José dos Campos (SP) and Santana de Parnaíba (SP), Brazil, 2018.

	M	SD
2 of 2		
Parents characteristics		
Parents' nutritional status ^b		
Underweight	1	1.2
Eutrophy	34	40.0
Overweight	36	42.4
Obesity	14	16.4
Children's characteristics	M	SD
Age (years)	3.8	0.8
	n	%
Gender		
Female	61	43.6
Male	79	56.4
Body Mass Index classification for age ^c		
Underweight	0	0.0
Eutrophy	112	80.6
Overweight risk	16	11.5
Overweight/obesity	11	7.9

Note: ^a Social class (estimated average income) A: R\$ 22,749.24; B1: BRL 10,788.56; B2: BRL 5,721.72; C1: R\$ 3,194.33; C2: R\$ 1,894.95; D-E: BRL 862.41. ^b Nutritional status classification according to BMI: Underweight <18.5 kg/m²; Eutrophy: 18.5-24.9 kg/m²; Overweight 25.0-29.9 kg/m²; Obesity ≥30.0 kg/m². ^c Nutritional status classification according to BMI by age for children under 5 years of age: Underweight: < z score -2; Eutrophy: ≥ z-score -2 and ≤ z-score -1; Risk of overweight: > z score +1 and ≤ z score +2; Overweight/obesity: > z score +2. ^d Nutritional status classification according to BMI by age for children older than 5 years: Underweight: < z score -2; Eutrophy: ≥ z-score -2 and ≤ z-score -1; Overweight: > z-score +1 and ≤ z-score +2; Overweight/obesity: > z score +2. M: Mean; SD: Standard Deviation.

As to the children, the mean age of the sample was 3.8 years and the majority of participants was male (56.4%). According to the BMI for age, 11.5% had overweight risk and 7.9% were overweight and obese (Table 1).

The consumption score of ultra-processed foods is shown in Table 2. The foods with the highest consumption scores were fruit yogurt, *petit Suisse* cheese and cookies without filling, and the foods with the lowest consumption scores were packaged snacks/potato chips and instant noodles. The most commonly used parenting feeding practices were "Guidance for healthy eating", "Monitoring" and "Pressure to eat". The least used practice was "Regulation of emotion/food as reward" (Table 3).

Table 2 – Ultra-processed food consumption score in preschool children (n=140 binomials) in São José dos Campos (SP) and Santana de Parnaíba (SP), Brazil, 2018.

Ultra-processed food	Consumption score (M±SD)
Ultra-processed food	5.36±5.94
Powder chocolate beverage	0.31±0.64
Cookie without filling	0.64±0.85
Stuffed cookie	0.31±0.67
Breakfast cereal	0.22±0.53
Chocolate/candy	0.21±0.63
Snacks/Potato Chips	0.10±0.38
Instant noodles	0.15±0.44
Fruit yogurt	0.75±0.97

Table 2 – Ultra-processed food consumption score in preschool children (n=140 binomials) in *São José dos Campos* (SP) and *Santana de Parnaíba* (SP), Brazil, 2018.

Ultra-processed food	Consumption score (M±SD)
Petit suisse	0.62±0.97
Fermented milk	0.47±0.75
Cream cheese	0.23±0.54
Sausage	0.30±0.73
Ham/baloney	0.30±0.74
Artificial juice	0.41±0.64
Soda	0.32±0.72

Note: M: Mean; SD: Standard Deviation.

Table 3 – Score of parental feeding practices adopted by parents of preschool children (n=140 binomials) in *São José dos Campos* (SP) and *Santana de Parnaíba* (SP), Brazil, 2018.

Parental feeding practices	Average M±SD
Guidance for healthy eating	4.18±0.47
Monitoring	4.09±0.82
Restriction for weight control	2.33±1.02
Restriction for health purpose	2.86±0.76
Regulation of emotion/food as reward	2.31±0.68
Pressure to eat	3.16±0.92

Note: M: Mean; SD: Standard Deviation.

The results of the multiple linear regression showed a significant association of parental feeding practices of “Monitoring”, “Restriction for health” and “Regulation of emotion/food as reward” with the score of consumption of ultra-processed foods ($F(6, 129) = 2,943, p=0.002; R^2_{adjusted}=0.126$). Table 4 presents the coefficients for all predictors that entered the model. As can be seen, the variable that was most strongly associated with the score of consumption of ultra-processed foods was the parental “Monitoring” feeding practice. The parental dietary practice of “Monitoring” ($\beta=-0.218, 95\% [CI=-0.310; -0.032]$) was negatively associated with the score of the consumption of ultra-processed foods, while the parental feeding practices of “Emotion regulation” ($\beta=0.176, 95\% [CI=0.003; 0.319]$) and “Health Restriction” ($\beta=0.189, 95\% [CI=0.008; 0.210]$) were positively associated thereto. The parental feeding practices “Pressure to eat” ($\beta=0.119, 95\% [CI=-0.034; 0.193]$), “Guidance for healthy eating” ($\beta=0.139, 95\% [CI=-0.047; 0.415]$) and “Feeding Restriction for weight control” ($\beta=-0.063, 95\% [CI=-0.666; 0.506]$) were not significantly associated with the consumption of ultra-processed foods. All the assumptions of the statistical tests were met.

Table 4 – Multiple linear regression results to verify factors associated with the consumption of ultra-processed foods in preschool children (n=140 binomials) in *São José dos Campos* (SP) and *Santana de Parnaíba* (SP), Brazil, 2018.

Independent variables	Non-standardized coefficients		Standardized coefficients*		p-value	95%CI
	β	Standard error	β	t		
Guidance for healthy eating	0.184	0.117	0.139	1.573	0.118	-0.047; 0.415
Monitoring	-0.171	0.070	-0.218	-2.429	0.017	-0.310; -0.032
Restriction for weight control	-0.038	0.056	-0.063	-0.666	0.506	-0.149; 0.074
Health restriction	0.109	0.051	0.189	2.134	0.035	0.008; 0.210
Emotion regulation	0.161	0.080	0.176	2.017	0.046	0.003; 0.319
Pressure to eat	0.079	0.057	0.119	1.380	0.170	-0.034; 0.193

Note: *Adjusted for parental age and years of schooling. BMI/age and gender of the child.

DISCUSSION

The assessment of the present study revealed that the consumption of ultra-processed foods in preschool children was significantly associated with certain parental dietary feeding practices. One of the most important findings of this study was that the “Monitoring” parental feeding practice was associated with lower consumption of ultra-processed foods. This parental practice assesses how much parents monitor their children’s intake of unhealthy foods, which seems to influence a reduction of the consumption of foods in this category [16].

Corroborating our findings, in a Brazilian study conducted by Mais *et al.* [11], with children aged 2 to 9 years and their parents, it was found that the lowest scores of “Monitoring” parental practice were associated with children’s higher consumption of ultra-processed foods. The study by Warkentin *et al.* [16] conducted with Brazilian preschool children, in the cities of *São Paulo* and *Campinas*, showed similar results, in which parents who scored higher in the “Monitoring” domain had children who consumed less ultra-processed foods. Additionally, it was demonstrated that the “Monitoring” parental feeding practice was positively associated with the parental perception of responsibility for the child’s feeding [16].

Other studies conducted with preschool children showed an inverse association between parental “Monitoring” and the consumption of foods and beverages with a higher fat and sugar content, as well as a positive association with the intake of fruits and vegetables in preschool children [26,27]. According to the classical theory proposed by Birch [28], the “Monitoring” parental feeding practice is associated with a less obesogenic environment for children, and is therefore considered a practice related to the reduction of behavioral aspects involved in excessive weight gain and unbalanced food consumption, including excessive intake of ultra-processed foods [11,25,29].

In a study conducted by Warkentin *et al.* [25], there was an association between the “Monitoring” parental feeding practice and a lower consumption of cookies by children in a condition of satiety and regardless of the presence of the parents. This result is particularly interesting because it portrays the role of this parental practice on the recognition of hunger and satiety signals by the child. Eating without hunger reflects a behavior of self-regulation of food intake, and refers to the susceptibility of children to eat when satiated, but exposed to hyperpalatable foods [19].

In fact, more recent studies point out that a moderate level of parental control, such as “Monitoring” the consumption of unhealthy foods, is a strategy that impacts children’s food consumption and is associated with maintaining adequate weight and healthy eating, including fruits and vegetables [30-32]. In this connection, these findings reinforce the parental feeding practice of “Monitoring” as a strategy that should be encouraged, as a way to control the consumption of less healthy foods by children and even to encourage the consumption of foods considered healthy [16,27]. However, it is important to mention that the effects of this practice are still controversial, as other studies did not find an association or found inconsistent results with food consumption and children’s weight [33,34].

In this study, there was also a positive association between the score of the parental feeding practice “Regulation of emotion/food as a reward” and the higher consumption of ultra-processed foods by children. This parental practice evaluates the use of food by parents as a form of reward for a desired behavior, or as a regulation of their children’s emotions. Parents probably use the offer of ultra-processed foods, such as sweets, candies, cookies or sweetened drinks, for example, as a reward for the consumption of foods considered healthy, such as fruits and vegetables, or else as a reward to the child for a certain type of behavior which is desired by the parents [11,16].

In a systematic review study, six out of ten studies that evaluated the influence of the use of the parental feeding practice “Food as a reward” on the habit of consuming unhealthy foods, such as sweetened beverages and junk food, revealed a positive association between these two variables, which was subsequently confirmed by meta-analysis. Additionally, three of the seven studies that evaluated healthy food consumption showed a negative association between this practice and the consumption of foods considered healthy, such as fruits and vegetables in children, while the other studies did not find a significant association [35]. The results of the present study enhance the theory that this type of parental feeding practice reflects in a higher consumption of unhealthy foods and, therefore, should not be encouraged in the family setting. The use of hyperpalatable foods as a reward for a desired behavior may cause these foods to be preferred by children [28].

The parental practice of “Health Restriction” appears to exert similar effects on the greater intake of ultra-processed foods by children. In our study, a positive association was observed between this practice and the consumption score of ultra-processed foods. The “Health restriction” reflects the restriction imposed by parents on the child’s food intake, aiming at promoting healthy eating and health benefits. It is important to note that the guardians often do not have a full understanding of what healthy eating and health are, so the restrictions imposed may not directly impact the restriction of ultra-processed foods consumption. Thus, it is extremely important to disseminate current concepts about healthy food, especially those for infant feeding [11,25].

Restricting children’s access to hyperpalatable foods, when performed chronically, can favor eating regardless of the physiological sensation of hunger [28]. This can be explained by the fact that food restriction can interfere with self-regulation of the child’s appetite, which would become more responsive to external factors, such as taste, flavor and texture of food, and less responsive to internal signs of hunger and satiety [36]. Studies conducted with children reveal that restrictive practices are associated with higher calories consumption, increased child preference for restricted food, and higher intake of ultra-processed foods [12,37].

Corroborating our results, studies with Brazilian preschool children identified greater consumption of ultra-processed foods in children whose parents reported restrictive food practices [16,38]. These practices were also associated with increased consumption of cookies in preschool children in Sweden [39]. Although some authors consider “Health Restriction” to be a moderate control practice that can positively influence children’s eating behavior, our findings did not support this theory [30].

Our study has some limitations, such as the small and specific sample taken from two municipalities in southeastern Brazil and the fact that part of the families in the sample has greater socioeconomic power when compared to most of the Brazilian population, which restricts generalization of the findings. The food frequency questionnaire answered by the children’s guardians has its limitations because it is a retrospective method and is prone to memory bias and social desirability, but it is widely used in epidemiological research as an instrument to assess food consumption [10,11]. It is also worth mentioning that because the questionnaire is answered by the father or mother, it may not fully reflect the reality of the child’s food consumption; however, it is a method widely used in several studies due to the lack of alternatives to measure consumption in the age group in question. The cross-sectional design of this study does not allow establishing a temporal relationship of cause and effect between parental feeding practices and the consumption of ultra-processed foods. Thus, studies with a longitudinal design and with a larger sample size are suggested to confirm the associations observed in this work.

One of the strengths of this study is the investigation of children's food consumption considering the NOVA classification, which separates foods according to the level of processing, while part of the studies in the area assess food consumption with a focus on food groups. Other positive points of the present study include the use of questionnaires developed for the specific age group of preschoolers and validated in Brazil to investigate parenting practices and food consumption, as well as anthropometric assessment of children [16,17].

CONCLUSION

It is concluded that the consumption of ultra-processed foods by preschool children was associated with the parental feeding practices of "Monitoring", "Regulation of emotion" and "Restriction for health". Based on the findings of this study, the importance of encouraging the use of positive parental feeding practices, such as "Monitoring" and the need to discourage the use of parental feeding practices such as "Regulation of emotion/food as a reward" and "Restriction for health" is emphasized to control the consumption of ultra-processed foods, as well as to impact healthy eating habits in preschool children

CONTRIBUTORS

CB PRATES participated in the data collection and analysis, literature search and article writing. MAZ PASSOS participated in data collection and article writing. DCL MASQUIO participated in analysis and article writing. All authors read and approved the final version.

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