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EATING BEHAVIOUR OF CHILDREN WITH FAILURE TO THRIVE: CHARACTERIZATION AND FAMILY CORRELATES

COMPORTAMENTO ALIMENTAR EM CRIANÇAS COM MÁ EVOLUÇÃO PONDERAL: CARACTERIZAÇÃO E CORRELATOS FAMILIARES

A.O.
ARTIGO ORIGINAL

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ABSTRACT

INTRODUCTION: The knowledge on eating behaviour determinants allows the elaboration of strategies that prevent and treat their imbalances. Failure to thrive is the reflection of the most severe cases of feeding disorders among children.

OBJECTIVES: To characterize eating behaviour among children with failure to thrive and their family history of failure to thrive and/or underweight. To relate the eating behaviour of children with failure to thrive with their parents/caregivers' eating behaviour. To compare children with and without older siblings regarding their eating behaviour and anthropometric measures.

METHODOLOGY: In this cross-sectional research children's eating behaviour was assessed using Children's Eating Behaviour Questionnaire. For each child, one parent/caregiver responded to the Dutch Eating Behaviour Questionnaire. Clinical and family data were collected during Paediatric Nutrition appointments.

RESULTS: A sample of 33 children (3 to 13 years) was included. Children presented higher scores in subscales related to food avoidance (Emotional under-eating, Food fussiness, Slowness in eating and Satiety responsiveness) and lower related to food approach (Enjoyment of food, Food responsiveness, Emotional over-eating and Desire to drink). One third had family history of low weight or failure to thrive. Food responsiveness was positively associated with parents/caregivers' external intake (R = 0.385, p = 0.027), and emotional overeating with parents/caregiver's restraint (R = 0.485, p = 0.004). Children with older siblings had higher enjoyment of food (mean = 2.59, sd = 0.93, *vs*. 2.00, sd = 0.60 p = 0.046) and lower food fussiness (mean = 3.09, sd = 0.91 *vs*. 3.77, sd = 0.55, p = 0.017) compared to those without older siblings. They also presented lower weight percentiles (n = 17; median = 16.5 *vs*. 1.0, p = 0.023).

CONCLUSIONS: Family history might be relevant, as one third of children with failure to thrive had prior cases of failure to thrive and/or underweight in the family. Having older siblings was associated with a more favourable eating behaviour, despite not reflecting directly in their weight status. Parents with higher external eating identify their children as having higher food responsiveness, and those with higher restraint identify their children as having a great intake of food mediated by emotions.

KEYWORDS

Eating behaviour, Failure to thrive, Paediatric feeding disorders

RESUMO

INTRODUÇÃO: O conhecimento dos determinantes do comportamento alimentar permite elaborar estratégias que previnam e tratem os seus desequilíbrios. A má evolução ponderal é o reflexo dos casos mais graves de perturbações alimentares em idade pediátrica.

OBJETIVOS: Caracterizar o comportamento alimentar de crianças com má evolução ponderal e sua história familiar de má evolução ponderal ou baixo peso. Relacionar o comportamento alimentar de crianças com má evolução ponderal e o comportamento alimentar dos pais/cuidadores. Comparar crianças com e sem irmãos mais velhos, relativamente ao comportamento alimentar e medidas antropométricas.

METODOLOGIA: Neste estudo transversal foi usado o comportamento alimentar das crianças foi avaliado através do Questionário do Comportamento Alimentar da Criança. Para cada criança, um pai/cuidador respondeu ao Questionário Holandês do Comportamento Alimentar. Dados clínicos e familiares foram recolhidos durante a consulta de Nutrição Pediátrica.

RESULTADOS: Avaliou-se uma amostra de 33 crianças (3 aos 13 anos). As crianças apresentavam pontuações mais elevadas nas subescalas relacionadas com o evitamento da comida (Sub-ingestão emocional, Seletividade alimentar, Ingestão lenta e Resposta à saciedade) e mais baixas nas relacionadas com a atração pela comida (Prazer em comer, Resposta à comida, Sobre-ingestão emocional, Desejo de beber). Um terço apresentava história familiar de baixo peso ou má evolução ponderal. A resposta à comida estava positivamente associada com a ingestão externa de pais/cuidadores (R = 0,385; p = 0,027), e a sobre-ingestão emocional com a restrição dos pais/cuidadores (R = 0,485; p = 0,004). As crianças com irmãos mais velhos tinham maior prazer em comer (média = 2,59; dp = 0,93 *vs*. 2,00; dp = 0,60; p = 0,046) e menor seletividade alimentar (média = 3,09; dp = 0,91 *vs*. 3,77; dp = 0,55; p = 0,017), comparando com as que não tinham irmãos mais velhos. Apresentavam também percentis de peso inferiores (n = 17; mediana = 16,5 *vs*. 1,0; p = 0,023).

CONCLUSÕES: A história familiar poderá ser relevante, uma vez que um terço das crianças com má evolução ponderal tinha relatos

de má evolução ponderal e/ou baixo peso na família. Ter irmãos mais velhos foi associado a comportamentos alimentares mais favoráveis, apesar de não se refletir diretamente no seu estado ponderal. Pais com maior ingestão externa identificam os filhos como tendo maior resposta à comida e pais com maior restrição alimentar identificam os seus filhos como tendo maior ingestão alimentar mediada por emoções.

PALAVRAS-CHAVE
Comportamento alimentar, Má evolução ponderal, Perturbações alimentares em idade pediátrica

INTRODUCTION

Eating behaviour is defined by attitudes and by psychological and social factors inherent to the selection and decision of qualitative and quantitative features of food intake (1-3). Eating behaviour is a multidimensional concept, and its study contributes to the knowledge of patterns and trends of food intake, of the population and the individual, and to the development of strategies that enhance their nutritional status (2, 3).

Children and adult eating behaviour differ. Whereas for adults, emotional, external and restrained eating are the most widely studied dimensions, for children, "attraction to food" and, at the other end of the spectrum, "avoidance of food" are the main groups of dimensions (2). Childhood represents a window of opportunities for the acquisition of healthy eating habits, through the modelling of the child's eating behaviour, programming their health status for life (4). In a family context, the competences and abilities that are part of the feeding process are developed from a set of interactions between several biological systems (5).

According to the Ecological Theory proposed by Bronfenbrenner, human behaviour is shaped through the interaction of the individual with its context, taking into consideration environmental factors and intrinsic personal characteristics, such as genetic profile and age (6). Parents provide the food, thus defining the type, portion, frequency of meals, the social context in which they are carried out and influencing the emotional experiences associated with food intake (7). In fact, children observe and model their own eating behaviour through their parents' examples, behaviours, and attitudes towards food, as well as the perception and satisfaction with their body image (8). Siblings also assume a direct impact on the child's development as role models and social peers, acting within the child's microsystem (6). The true impact of siblings on food choices and behaviour of children and adolescents has not yet been widely studied (9).

Failure to thrive represents an inadequate pattern of weight gain, defined by the nutritional deficit, and documented by the inability to achieve the expected weight gain over time (10). However, there are no consensual diagnostic standards for anthropometric assessment, so that several cut-off points can be assumed through the analysis of weight percentile curves (11, 12). Currently, failure to thrive is considered one of the most frequent reasons to request Paediatric appointments (13) and Paediatric Nutrition appointments. Early intervention makes it possible to achieve healthy growth parameters, and, consequently, assumes a positive result in the child's development (10, 14, 15). To our best knowledge, there are no studies exploring eating behaviour among children with failure to thrive.

OBJECTIVES

To characterize eating behaviour among children with failure to thrive and their family history of failure to thrive and/or underweight. To relate the eating behaviour of children with failure to thrive with their parents/caregivers' eating behaviour. To compare children with and without older siblings regarding their eating behaviour and anthropometric measures.

METHODOLOGY

The cross-sectional study was approved by the Ethics Committee of the University Hospital Centre of São João (CHUSJ). Data collection was carried out within the scope of the Paediatric Nutrition Consultation at CHUSJ, from October 2019 to March 2020.

A convenience sample was used, composed of children between 3 and 13 years old (age range for which the Children's Eating Behaviour Questionnaire is validated) (16) attending the Paediatric Nutrition appointment due to failure to thrive. Exclusion criteria were children who were institutionalized, unable to perform the anthropometric assessment and/or whose parents/caregivers were unable to respond to the survey or complete the questionnaires. In all, 36 children and their parents/caregivers were approached, of which 33 agreed to participate (92% participation rate).

Sociodemographic (sex, age), family (having or not older siblings, family history of failure to thrive and/or underweight, family history of overweight or obesity), and clinical data (gestational age, birth weight, birth length, height, weight) was collected through the Child and Youth Health Bulletin, from their clinical record, accessed by SClinico®, and completed through the application of a questionnaire developed by the main investigator. Anthropometric data were converted into percentiles using World Health Organization (WHO) Anthro (for children under five years) and WHO AnthroPlus (five years or above), according to the WHO criteria (17, 18). Weight percentiles were only determined for children aged 10 years or below, as WHO reference data are not available, since it is not considered a good indicator during a pubertal growth spurt (19, 20). The Research Bulk Calculator, based on the curves of Fenton and Kim, was used to access percentiles and to classify whether the participant was small for gestational age, adequate for gestational age and large for gestational age, according to WHO criteria (21, 22).

The Children's Eating Behaviour Questionnaire (16, 23) and the Dutch Eating Behaviour Questionnaire (24) were used to assess children's and their parents/caregiver's eating behaviour, respectively. The Children's Eating Behaviour Questionnaire is composed of 35 items, grouped into eight subscales: "Enjoyment of food", "Food responsiveness", "Emotional over-eating", "Desire to drink", "Emotional under-eating", "Food fussiness", "Slowness in eating" and "Satiety responsiveness" (16, 23). The first four subscales correspond to patterns of "attraction to food", whereas the final four to "avoidance of food". The Dutch Eating Behaviour Questionnaire comprises 33 items divided into three dimensions: "External eating", "Restraint" and "Emotional eating". For both instruments, each item is scored from 1 to 5, and the score in each subscale/ dimension corresponds to the mean value of its items. Higher scores indicate higher expression of each subscale/ dimension. To assess self-perception of the adequacy of eating habits parents/caregivers also fulfilled the question "On a scale of 1 to 5, how would you characterize your own eating habits?", according to a Likert scale (from 1 to 5), in which 1 would correspond to "Not at all healthy" and 5 to "Very healthy".

Statistical analysis was conducted using IBM SPSS Statistics, version 26.0 for Machintosh. Kolmogorov-Smirnov's test was used to assess the normality of quantitative variables. Pearson's correlation coefficient was used to measure the associations between children's and their parents/caregivers' eating behaviour, while Spearman's correlation coefficient (ρ) was used to measure the associations between children's eating behaviour and their parents/caregivers' self-perception of intake adequacy.

Student's t test and Mann Whitney's U test were used to compare children's with and without older siblings regarding eating behaviour and anthropometric measures, respectively. A significance of 5% was considered to reject the null hypothesis.

RESULTS

A sample of 33 children (median age = 10 years; range: 3 to 13) was assessed, 18 females (54.6%) and 15 males (45.5%). One third of the children (33.3%) had prior cases of failure to thrive and/or underweight in the family, above than the reports of overweight and/or obesity (30.3%). At the time of assessment, the median weight percentile of the children corresponded to 3 and the median Body Mass Index (BMI) percentile to 15 (Table 1).

Table 2 presents the characterization of children's eating behaviour and its relationships with family characteristics. Children presented higher scores in subscales related to food avoidance (Emotional under-eating, Food fussiness, Slowness in eating and Satiety responsiveness) and lower related to food approach (Enjoyment of food, Food responsiveness, Emotional over-eating and Desire to drink). Positive associations between food responsiveness in children and external intake in parents/caregivers (R = 0.385, p = 0.027) and between children's emotional overeating and parent's/caregiver's restraint (R = 0.485, p = 0.004) were found. A better self-perception by their parents/caregivers of the adequacy of eating habits was associated with higher levels of enjoyment of food, emotional over-eating and food fussiness by children. However, all these correlations were weak.

We also found that children with older siblings had higher scores in the subscales enjoyment of food (mean = 2.59, sd = 0.93 *vs*. 2.00, sd = 0.60, p = 0.046) and emotional over-eating (mean = 2.07, sd = 0.70 *vs*. 1.64, sd = 0.47), although this one not statistically significant (p = 0.055), and lower score in food fussiness (mean = 3.09, sd = 0.91 *vs*. 3.77, sd = 0.55, p = 0.017).

Having older siblings was also related with lower weight percentiles (n = 17; median = 16.5 *vs*. 1.0, p = 0.023).

Table 1

Anthropometric characterization

n = 33	n	%
Small for gestational age	11	33.3
n = 33	**MEDIAN**	**P25, P75**
Weight Percentile [n = 17]	3	1; 21
Height Percentile	5	0; 19
BMI Percentile	15	3; 44
Gestational age (weeks)	39	38, 39
Birth weight Percentile	25	8; 50
Birth length Percentile	20	6; 33

BMI: Body Mass Index

DISCUSSION OF THE RESULTS

According to the results obtained by Nogueira *et al*., a family history of failure to thrive is considered as a possible risk factor for children having that condition, since it is present in most of the assessed children (25). In the present study, the occurrence of reports of failure to thrive and/or underweight in the family was relevant, corresponding to 33.3%, although lower than what was found in Nogueira *et al*. (49.2%), but above than the occurrence of reports of overweight and/or obesity, that were verified in only 30.3% of the cases. In turn, the occurrence of reports of overweight and/or obesity were lower when compared to the results of the IAN-AF, which point to a national prevalence of 22.3% of obesity and 34.8% of overweight, totalling, more than half of the population (26). The fact that this report may be biased by an underestimation and, consequently, underreporting of these cases by parents/caregivers should be considered.

Regarding the anthropometric assessment, the median weight percentile (used for children aged 10 years or below) corresponds to the criterium used to characterize failure to thrive (11), thus indicating that at least half of those children would fulfil that criterium applied to a single assessment. However, it would be pertinent to collect data from multiple assessments, to enable the analysis of the anthropometric progression.

Analysing the clinical history of the child since birth, 33.3% of the included children were small for gestational age. This represents a high prevalence when comparing to the results obtained within the scope of the Generation 21 project, in which only 14.5% of newborns were classified being small for their gestational age (27). This classification is assumed as one of the factors that should be considered in the evaluation of failure to thrive, since young children (until three years old) may be growing as expected even when presenting percentiles below 3 (28).

Table 2

Children's eating behaviour and relation with family characteristics

CHILDREN'S EATING BEHAVIOR		ASSOCIATION WITH EATING BEHAVIOUR OF PARENTS/CAREGIVERS			ASSOCIATION WITH PARENTS/ CAREGIVERS' SELF-PERCEPTION OF INTAKE ADEQUACY	COMPARISON ACCORDING TO OLDER SIBLING EXISTENCE		
	MEAN (sd)	EXTERNAL EATING 2,70 (0,12) r (p)	RESTRAINT 2,23 (0,13) r (p)	EMOTIONAL EATING 2,07 (0,13) r (p)	ρ (p)	WITHOUT OLDER SIBLINGS [n = 14] MEAN (sd)	WITH OLDER SIBLINGS [n = 19] MEAN (sd)	p*
Enjoyment of food	2.34 (0.15)	0.011 (0.953)	0.207 (0.247)	0.069 (0.701)	0.455 (0.008)	2.00 (0.60)	2.59 (0.93)	0.046
Emotional over-eating	1.89 (0.11)	0.113 (0.532)	0.485 (0.004)	0.299 (0.091)	0.387 (0.026)	1.64 (0.47)	2.07 (0.70)	0.055
Satiety responsiveness	3.16 (0.15)	0.069 (0.702)	-0.028 (0.878)	0.116 (0.521)	-0.174 (0.333)	3.44 (0.65)	2.95 (0.93)	0.096
Slowness in eating	3.42 (0.13)	0.168 (0.351)	-0.017 (0.923)	0.246 (0.168)	-0.209 (0.244)	3.63 (0.87)	3.28 (0.66)	0.198
Desire to drink	2.11 (0.15)	0.226 (0.205)	-0.145 (0.419)	-0.025 (0.892)	0.111 (0.538)	2.07 (0.76)	2.14 (0.95)	0.825
Food fussiness	3.38 (0.15)	0.198 (0.269)	0.021 (0.910)	0.188 (0.295)	0.360 (0.040)	3.77 (0.55)	3.09 (0.91)	0.017
Emotional under-eating	2.47 (0.17)	0.239 (0.180)	0.232 (0.194)	0.290 (0.102)	0.013 (0.942)	2.52 (0.94)	2.44 (1.05)	0.811
Food responsiveness	1.75 (0.11)	0.385 (0.027)	0.161 (0.370)	0.195 (0.278)	0.206 (0.250)	1.59 (0.56)	1.87 (0.65)	0.207
					Weight Percentile [n = 17]***	16.5 (2.2; 27.2)	1.0 (0.0; 7.0)	0.023**
					Height Percentile	5.5 (1.4; 25.3)	5.0 (1.0; 16.0)	0.729**
					BMI Percentile	25.5 (11.0; 45.0)	8.0 (1.7; 30.0)	0.121**

* Student t test for independent samples
**Mann-Whitney's U test
***Without older siblings: n = 8, with older siblings: n = 9

BMI: Body Mass Index
ρ (p): Spearman's correlation coefficient
r (p): Pearson's correlation coefficient

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Nevertheless, the request for the Nutrition appointment and follow-up suggests that the evaluated cases are in fact correctly categorized as having failure to thrive and in need of nutritional monitoring in order to achieve a healthy growth and development. Considering this, we highlight the relevance of monitoring the evolution of children who at birth fulfil these criteria, in order to identify early cases in which a specialized intervention is essential.

About three quarters of the children had siblings, most of whom are older (57.6%). In the literature, there are studies that relate the number of siblings and birth order with birth weight, excess weight and even behaviour patterns (22). In fact, studies associate being an only child or being the younger sibling with a higher risk of being overweight in paediatric age (21). However, there are still no studies to clarify possible relationships with failure to thrive.

In the present study, a relationship was identified between having older siblings and lower weight percentile values. This result suggests that children with older siblings have a greater severity of failure to thrive, but the possible causal relations and mechanisms involved are unclear. This highlights the need for further studies, with larger samples, to understand the relationship between weight status and the number of siblings, birth order and even its relationship with age.

Relationship Between the Eating Behaviour of Parents/ Caregivers and Children

The results referring to the subscales of the Children's Eating Behaviour Questionnaire were similar to those obtained by Viana *et al*. among children with feeding disorders or underweight, and contrasts with those seen in overweight children (29).

Food fussiness, which includes reduced food variety and lack of appetite, is assumed to be one of the subscales most associated with eating disorders and underweight (16). On the other hand, the low values in the subscales of food responsiveness, desire to drink and enjoyment of food, demonstrated the lack of interest and pleasure at the time of the meal. Overall, these children have lower scores on the subscale emotional over-eating compared to the emotional under-eating subscale. Thus, the main eating-related response to emotions among these children seems to be a lower food intake. This trend is also verified by Viana *et al*. who reported that underweight children tend to have higher scores on the subscale emotional under-eating (29). Even so, the values of both subscales are low, which suggests that the impact of emotional status on the eating behaviour of these children might not be very high.

The pattern of results obtained in the scales of restrained, emotional and external eating by parents/caregivers are similar to those found in the study of adaptation and validation of the Dutch Questionnaire of Eating Behaviour (24). In both studies, external eating is the subscale with the highest mean scores, followed by restrained and, finally, emotional eating(24). This suggests that the eating behaviour of parents/caregivers is not overall different from the overall population; nevertheless, and within these common ranges, some features are related with children's eating behaviour dimensions. The positive association found between the dimension food responsiveness in children and external eating in parents/caregivers is in line with the influence that the external attributes that food have on intake, which underlies both constructs (29). The same relationship is found when studying the general population (30).

On the other hand, the relationship between higher restraint of parents/ caregivers and higher emotional overeating by children does not present an evident justification. The development of children's eating behaviour comes from the observation of their role models, parents, siblings, and children of the same age (21, 31). In this context, children who witness a more restrictive behaviour from parents/caregivers revealed a greater tendency towards disinhibition mediated by emotions. On the one hand, parents who try to have greater control over their intake might also try to reflect a greater control over their children's intake, pressuring them to eat. This could lead to a perception of higher food intake despite under the influence of negative emotions, which would be considered positive given that their children have failure to thrive.

Relationship Between having Older Siblings and Children's Eating Behaviour

Having older siblings can affect children's eating behaviour. However, there are few studies that assess the impact of siblings on the eating behaviour of children and adolescents (9). In addition, the influence of the number of siblings, specifically on food fussiness and neophobia, is still scarcely studied (9).

Our results pointed to a relationship between having older siblings and higher enjoyment of food and emotional over-eating, as well as lower food fussiness. Thus, having older siblings favours the pattern of food attraction and reduces at least one avoidance subscale. Although this behaviour model is more favourable, by suggesting a higher intake, especially considering the clinical situation of included children, the same association between these factors and their weight status is not observed. In fact, the assessment of eating behaviour is substantially different from the assessment of intake. Even though these children presented a more favourable behaviour pattern, this might not correspond to a higher intake and, therefore, not directly reflect on their weight and BMI.

In the study developed by Mosli *et al.* it is suggested that birth order is associated with the amount of encouragement the child receives, with younger siblings receiving more encouragement to eat from older siblings. Older siblings seem to act as role models, but also as caregivers during meals, imitating the role played by caregivers and encouraging siblings who have underweight to eat more. However, the association between these encouragements and BMI is not yet known and the need to carry out prospective studies to establish the direction of these relationships is highlighted.

In addition, studies in the general population indicate that older children tend to have lower food fussiness and slowness in eating (32). This fact leads to the hypothesis that the older siblings, representing a behaviour model of lower food fussiness and slowness in eating, may positively influence younger siblings to follow a behaviour in the same direction. The assessment of siblings' weight status, as well as of their eating behaviour, would make it possible to advance with the knowledge of the interactions that are established in this context.

Relationship Between Parents'/caregivers' Self-perception of Food Adequacy and their own and Children's Eating Behaviour

It appears that superior ratings by parents/caregivers attributed to their own eating habits are associated with higher enjoyment of food, emotional over-eating and food fussiness. These characteristics might be perceived as positive by parents/caregivers. In fact, the cases in which parents/caregivers considered that their eating habits are healthier were also the cases in which children presented better ratings on subscales related to the pattern of attraction to food, such as enjoyment of food and emotional overeating. On the other hand, they simultaneously presented higher food fussiness, that is, they tend to limit their food variety. It would be interesting to verify which foods these children avoid, if they are considered more or less "healthy" foods by their parents/caregivers, so that they might perceive their avoidance as positive.

Strengths and Limitations

As limitations of this study, we identified the use of a convenience sample, which conditions the generalization of results, and a relatively small sample size, which limits the statistical power, making it difficult to observe possible relationships between the variables. However, considering the specificity of the condition assessed and comparing with other studies of children with failure to thrive (n = 61 and n = 74) (33, 34), the number of individuals in our sample allows to add relevant information to the current body of knowledge. Moreover, we highlight the high participation rate (92%).

As already pointed out by Viana *et al*., the fact that the child's eating behaviours are evaluated by the parents/caregivers might be subject to their misinterpretations (30). Also, children with intrauterine growth restriction or small for gestational age were not excluded, similarly to other studies (25). In these cases, despite the fulfilment of anthropometric criteria, the growth rate of children might correspond to expectations, which is why several authors state that they should not be classified as failure to thrive (35).

It is known that the strategies used by parents/caregivers associated with pressure to eat are positively associated with a pattern of food avoidance, and negatively with patterns of food attraction. These parental practices are often associated with children with lower weights (29, 30). However, in this study, parental practices, such as pressure to eat or passive monitoring, were not evaluated, so it is not possible to draw conclusions in this regard. The importance of, in future studies, address these relationships in this specific population is highlighted. It should also be considered the possibility that patterns of eating behaviour suggesting higher food intake could be perceived as positive for parents and resulting from the control they apply.

In the past, the eating behaviour of children was evaluated in a sample of the Portuguese population and even in children with eating disorders (29, 36); however, this study had not yet been performed in children with established failure to thrive. Furthermore, we intended to relate these children's eating behaviour to the eating behaviour of parents/caregivers and family, and clinical data, given that there are still few studies that address these relationships, despite their importance in terms of transposing the results for clinical practice.

With this analysis, relationships between children's eating behaviour and the eating behaviour of parents/caregivers, as well as whether they have older siblings, were observed. These results demonstrate the relevance of considering the family as potential therapeutic aids at the level of therapeutic intervention.

However, there remains the need to study children's eating behaviour in greater depth, as well as its relationship with family and sociodemographic determinants, to be able to later integrate this knowledge into clinical practice, addressing their imbalances with a greater understanding. For future research we suggest to explore parenting practices as possible mediators of the relationships between their own eating behaviour and their children's eating behaviour and growth.

CONCLUSIONS

Family history might be relevant as one third of children with failure to thrive had prior cases of failure to thrive and/or underweight in the family. Having older siblings was associated with a more favourable eating behaviour, despite not reflecting directly in their weight status, as the weight percentile of children with older siblings was lower compared to children without older sibling. Parents with higher external eating identify their children as having higher food responsiveness, and those with higher restraint identify their children as having a great intake of food mediated by emotions.

CONFLICTS OF INTEREST

None of the authors reported a conflict of interest.

AUTHORS' CONTRIBUTIONS

All authors were responsible for the conception of the study. SIM: Collected the data; SIM and RP: Analyzed the data and interpreted the results; SIM: Drafted the first version of the manuscript, which was reviewed by the remaining authors. All authors have read and approved the final version of the manuscript.

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