



Mother Perception of Body Image and Infant Feeding Knowledge of their Preschool Children: Cross-sectional Study

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Abstract

Parents are important agents in the promotion of health, behavior, and education of their preschool children; especially, parental nutrition knowledge and children's body image perception have been described as important factors for children's healthy food knowledge, as well, as influence their children's diet quality and micronutrient adequate intake. This study aimed to examine parent's perception concerning the real and ideal image of their preschool children and identify parental nutrition knowledge of their children. 58 preschool children were a cross-sectional community sample of 54 mothers who were recruited in a Portuguese preschool, with a mean age of 4.3 ± 1.0 years, of which 37.0% were female with a mean BMI of 16.3 ± 1.3 kg/m². Questionnaires of knowledge of infant feeding questionnaire and perception of the child's body image were applied. 98.1% of mothers had an insufficient knowledge (score less than 37) about their infant feeding, and 1.9% had a good knowledge (score more than 42). 38.8% of mothers in this study were little worried about their children nutritional status, and most (48.1%) of them have the perception that their children have a normal weight. In conclusion, preschool children in this study have a normal BMI percentile, however we found that mothers with higher BMI, were more concern about their children be overweight / obese in future. However, mostly of mothers' perception of their children's weight does not correspond to the real value.

Keywords: Preschool Children; Mother's Perception; Nutritional Knowledge

Abbreviations

BMI: Body Mass Index

Introduction

Childhood obesity has become a serious public health problem and a challenge of today's society, according to the World Health Organization [1]. Worldwide, 42% of adults and approximately one-fifth of children are overweight or obese. This increase has a multifactorial cause, namely biological, environmental, beha-

vioral, social and economic factors [2]. Child's risk of disordered eating and obesity may be influenced by eating patterns, consolidated during early childhood, and important factors related to the development of children's positive and negative eating patterns are parental feeding practices [3].

Parents are important agents in the promotion of health, behavior, and education of their preschool children; they create food environments and play a key role in structuring their children's first experiences with food and eating through their own beliefs,

food practices, perspectives, eating attitudes, knowledge, and understanding of the benefits of food and nutrients on health [4,5]. Especially, parental nutrition knowledge and children's body image perception have been described as important factors for children's healthy food knowledge, as well, as influence their children's diet quality and micronutrient adequate intake. Related to this subject, the parent's perception of the body image of their children and their nutritional status has been analyzed, because it is considered that an incorrect parent's perception or unaware of their children's overweight are less likely to the adoption of preventive strategies or treatments facing this condition [6].

The potential influences of parent feeding practices and parent-child communication about weight highlight the importance of involving parent in the prevention and treatment of childhood obesity. Parent's personal weight appears to be associated with parental feeding practices such that those with overweight and obesity feed less-balanced meals and less-varied food and perceive their children to be more avoidant of food in favor of drinks, compared with those with healthy-weight. As well as parent's personal weight concerns are also related to, they have about their children's weight [7].

Therefore, to increase the knowledge about this association, the aim of the current study was to 1) examine parent's perception concerning the real and ideal image of their preschool children and 2) identify parental nutrition knowledge of their children. Findings of this investigation will help improve our comprehension of the elements that may influence children's dietary patterns and provide valuable understanding about whether nutritional knowledge and healthy-eating attitudes are equally important.

Materials and Methods

Participants

Participants were a cross-sectional community sample of 54 mothers and their preschool children who were recruited in a Portuguese preschool. Participation in the study was voluntary and anonymous. Data were collected when preschoolers' children were attending kindergarten and excluded major holidays and collected during the months of October and November of 2019. The entire investigation team was properly trained in data collection. The pa-

rents and guardians of all children that participated in the present study signed a written informed consent, and the study was approved by the local education authorities, and the General Directorate of Education - Ministry of Education.

Anthropometric measurements

Anthropometric measurements (body mass, height) were performed under standard conditions. Body height was measured in an upright position, barefoot, to the nearest 0.1 cm using a portable stadiometer (Tanita HR-200, Tokyo, Japan). Body mass was assessed with an accuracy of 0.01 kg using a body composition analyzer (BC-420 MA, Tanita, Tokyo, Japan). The participants were measured in light clothing and wearing no shoes. Body mass index was calculated as body mass/height (kg/m² [1]). Based on BMI values, the BMI percentile of individual participants was calculated. Waist circumference (cm) was measured with a steel measuring tape with measurements made halfway between the lower border of the ribs and the iliac crest in a horizontal plane. All measurements were carried out in duplicate with subsequent recording of the average value.

Mother knowledge of infant feeding questionnaire

It was asked to mothers to answer a questionnaire aimed to identify the knowledge of infant feeding, according the [8] questionnaire. The statements address aspects such as: characteristics of food/food groups with implications for health (positive and negative); behaviors that mediate the rules for eating practices daily; attitudes grounded in beliefs cultural and family food; knowledge nutrients that guide daily life every day for use different food groups. The score varies between (1) true and (0) false; 1 means that the answer is given in the right direction, indicating adequate knowledge about the infant feeding. A score of 0 is given to responses false, which indicates incorrect knowledge. The total score, obtained by the sum of all the answers marked in the correct direction, it varies between 0 and 60. The higher the total score, the better the knowledge of parents in infant feeding.

Mother perception of the child's body image

It was asked to mothers to answer a questionnaire aimed to identify the mother perception of the child's body image. In the application, parents are asked to mark the figure that they consi-

der best represents the silhouette of your child (real perception) and the one they would like him / her to had (subjective ideal). The index obtained reflects the difference between the real and ideal perception of country. A positive score indicates a distorted perception, with the actual body image being higher than ideal; a negative score indicates a distorted perception where the actual body image is thinner than the ideal image. The score 0 indicates that there is no discrepancy in perception. The parents' real perception is also compared with the child's nutritional status (value obtained by the BMI percentile). Silhouettes 1 and 2 represent low weight; 3 normal weight; 4 and 5 represent overweight; 6 and 7 obesity [9].

Statistical analysis

Data were checked for normal distribution using Kolmogorov-Smirnov test. The mean, standard deviation and 95% confidence interval were calculated as descriptive statistics. Pearson correlation was used to measure the association between different variables. Differences were considered significant when p-value <0.05. All statistical analyses were performed using Statistical Package for Social Sciences (SPSS) version 23.0 statistical software for Mac (IBM, Armonk, NY, USA).

Results and Discussion

Participant's characterization

Preschool children demographics (n = 54) are presented in table 1. Preschool children were from Portugal, with a mean age of 4.3 ± 1.0 years, of which 37.0% were female with a mean BMI of 16.3 ± 1.3 kg/m².

	Sample (n = 54)
Age (years)	4.3 ± 1.0
Sex	
Female	37.0% (n = 20)
Male	63.0% (n = 34)
Weight (kg)	18.5 ± 2.9
Heigh (m)	1.06 ± 0.07
BMI (kg/m ²)	16.3 ± 1.3
WC (cm)	51.0 ± 3.0
%BMF	22.5 ± 3.4
Percentil	70.7 ± 23.2

Table 1: Mean ± standard deviation of anthropometric variables of preschool children from this study

BMI: Body Mass Index; WC: Waist Circumference;

%BMF: Percentage of Body Mass Fat.

According to BMI and percentile values, the preschool children were normal ponderal, were between 50th and 70th percentiles, unlike the latest studies, which indicate obesity has been increasing in children of preschool age [10,11]. Mothers of preschool children demographics (n = 54) are presented in table 2. Mothers from preschool children were from Portugal, with a mean age of 36.9 ± 4.9 years, with a mean BMI of 24.7 ± 5.1 kg/m², which means that they have a normal ponderal.

	Sample (n = 54)
Age (years)	36.9 ± 4.9
Weight (kg)	68.8 ± 17.9
Heigh (m)	1.64 ± 0.09
BMI (kg/m ²)	24.7 ± 5.1

Table 2: Mean ± standard deviation of anthropometric variables of mother's preschool children from this study.

BMI: body mass index.

When making the association between the parents' BMI with the children's BMI, it was found that the higher the parents' BMI, the higher the children's BMI (ρ = 0.384; p = 0.078).

Mother knowledge of infant feeding questionnaire

According to the results of knowledge of infant feeding questionnaire, most of the mothers (98.1%) had an insufficient knowledge (score less than 37) about their infant feeding, and 1.9% had a good knowledge (score more than 42).

These results are in accordance with our results in other studies, that many mothers reported poor nutritional knowledge/education, were more concerned about child's underweight status than overweight, or were overweight themselves, which limited accurate identification of their child's weight status [12]. Hence, mothers' nutrition knowledge in the present study is likely a reflection of the importance they place on this topic and their interest in health and nutrition.

Knowledge is a complex system of beliefs determined by individuals' experiences within their social, physical and biological environments. In the context of nutrition and eating, knowledge is commonly defined as the understanding of the health benefits of food and nutrients. However, nutrition knowledge may be de-

fined in many ways, and it is important to consider the relevance of the definition for the target group. Of the many factors that can influence eating behaviors, a lack of nutrition knowledge is one of the most amenable to change and improving nutrition knowledge through nutrition education is a common component of obesity interventions [5]. Studies in children and adults have shown positive associations between nutrition knowledge and likelihood of healthy food consumption, indicating that nutrition knowledge is necessary for making healthier food choices [13]. One study reported that lack of support, confidence, motivation and cooking skills was a barrier to healthy eating in children [12].

Mother perception of the child’s body image

According to the results of mother perception of their child’s body image, one of the questions in the questionnaire was related to the fact that how they are concerned about their child be overweight or obese (Table 3), as well as their perception about the weight of their children.

		n (%)
Concern about the nutritional status of their children	Nothing worried	12 (22.2)
	Little worried	21 (38.8)
	Worried	8 (14.8)
	Quite Concerned	7 (12.9)
	Very worried	6 (11.1)
Perception of the nutritional status of their children	Low weight	11 (20.4)
	Normal weight	26 (48.1)
	Overweight	13 (24.1)
	Obesity	4 (7.4)

Table 3: Frequency of answers about of mother perception about their children nutritional status.

Most of the mothers (38.8%) in this study was little worried about their children nutritional status, and most (48.1%) of them have the perception that their children have a normal weight. Evidence from qualitative studies showed that mothers believed that their child will eventually “outgrow” their excessive weight, saw excessive weight as “cute and healthy”, spoke of obesity as a problem that may affect child’s health in the future, but not in the present and showed a lack of trust in the measure used to classify their child as overweight [14].

In this study, when associating the child’s weight perception with the real value, it was verified that 32.4% have the real perception of their children weigh, and 67.6% have a perception above of their children weight. The concern with the nutritional child’s status is significantly greater in parents with a great BMI ($\rho = 0.536$; $p = 0.010$). Cross-sectional studies with a wide age range [15], one longitudinal study [16] and a meta-analysis have shown that mothers are less likely to report their overweight child as overweight if the child is younger, particularly those under 6 years, that meets our results. Overall, these findings from the present study suggest that classifying a child’s weight status, as might be expected, is based simply on the child’s BMI; the only significant predictor of whether mothers classified their child as overweight was higher child BMI, also reported in other studies [17]. Mothers are more likely to classify their child as overweight if the child is obese rather than overweight, according to other studies.

Conclusion

In conclusion, in this study, participants have a normal BMI percentile, however we found that mothers with higher BMI, were more concern about their children be overweight/obese in future. However, mostly of mothers’ perception of their children’s weight does not correspond to the real value.

If mothers identified the correct BMI in their child at a lower level, it is possible that they might be more able to take effective action to help their child return to a healthy body weight. Efforts are currently underway to raise parents’ awareness of their child’s weight status in order to reverse the prevalence of overweight/obesity.

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