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Original Article

Perceptions, Knowledge, and Routines of Parents regarding Food Introduction Methods and their Relationship with Speech

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ABSTRACT

This study analyses the eating routines and habits of Portuguese children aged 4 to 18 months, the methods of food introduction most frequently used, and the parents' perceptions regarding the importance of food introduction for speech development. A sample of 297 parents filled out an online self-report questionnaire about their perceptions, knowledge, and routines regarding food introduction methods, and their relationship with speech development. This questionnaire showed high reliability (α=0.86). The majority of the Portuguese mothers that filled out the survey answered either that they breastfed their children or breastfed them in combination with bottle feeding. They also stated that they introduce new food to their children in the form of soups or purees and that they vary the flavors, textures, and consistencies frequently. Although the results showed a reasonable level of knowledge regarding the traditional and Baby Led Weaning (BLW) methods, there was a higher frequency of use of the traditional method in this sample when compared to BLW. There was not a significant correlation between the age of the parents and their perception of the importance of feeding for speech. In turn, parents with a higher level of education showed a greater awareness of the relevance of feeding in the development of speech. Parents with a higher number of children showed less awareness of the relationship between feeding and speech development.

Palabras clave:
Feeding; Feeding Methods; Complementary Feeding; Speech; Parents

Percepciones, conocimiento y rutinas de los padres acerca de los métodos de introducción de alimentos y su relación con el habla

ABSTRACT

Este estudio analizó las rutinas y los hábitos de alimentación de niños portugueses de entre 4 y 18 meses, los métodos de introducción de alimentos más utilizados y las percepciones de los padres acerca de la importancia de la introducción de alimentos en el desarrollo del habla, Se aplicó un cuestionario online a una muestra de 297 padres. El cuestionario mostró una alta fiabilidad (α = 0.86). La mayoría de las madres portuguesas respondió que amamantan a sus hijos o que lo hacen en combinación con biberón. Además, que les presentan nuevos alimentos a sus hijos en forma de sopas o purés y que varían los sabores, texturas y consistencias con frecuencia. Aunque hubo resultados razonables con respecto al conocimiento sobre los métodos tradicionales y Baby Led Weaning (BLW), en esta muestra se observó una mayor frecuencia de uso del método tradicional en comparación con BLW. Por otro lado, no hubo una correlación significativa entre la edad de los padres y su percepción sobre la importancia de la alimentación para habla. Los padres con estudios superiores mostraron una mayor percepción sobre la importancia de la alimentación en el habla. Los padres con un mayor número de hijos mostraron una menor consciencia sobre la importancia de la relación entre la alimentación y el habla.

Keywords:
Alimentación; Métodos de Alimentación; Alimentación Complementaria; Habla; Padres

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INTRODUCTION

Oral motor skills comprise the functioning of structures (e.g. lips, cheeks, jaw, and tongue) that play an important role in speech and feeding (Sampallo-Pedroza et al., 2015). Some studies have shown that children with speech disorders are considered at risk for orofacial dysfunctions and overall motor difficulties, including difficulties in feeding (Adams-Chapman et al., 2013; Malas et al., 2015; Mogren et al., 2020).

Traditionally, speech disorders have been divided into two types: speech/motor difficulties and phonological/linguistic difficulties. However, this conception has been challenged recently, with some authors attempting to link and unify the phonetic (speech/motor) and phonological aspects of language (e.g. McAllister, 2012; Namasivayam et al., 2020). According to this perspective, a well-coordinated sensory-motor function of the orofacial muscles is critical for chewing, swallowing, and speech (Martinez & Puelles, 2011). In fact, during the production of speech, a large number of muscles are activated, showing that motor control is fundamental for speech acquisition (Green & Nip, 2010). Speech is considered a complex skill that requires linguistic competencies and a functional neuromuscular system. The sensory-motor function of the orofacial structures is critical for all stomatognathic functions (Martinez & Puelles, 2011).

It is considered that early speech sounds inventories are limited by anatomical and physiological characteristics of the oral motor system (Kent & Murray, 1982; Lohmander et al., 2017). Indeed, articulator synergies seem to develop at different stages, meaning that lip-jaw synergies develop earlier than tongue-jaw synergies. This suggests that the development of speech motor control may be hierarchical, sequential, and non-uniform (Namasivayam et al., 2020). This happens because speech involves the coordination of several neural-muscular structures in order to generate an intelligible speech without errors (Smith & Zelaznik, 2004). For example, the first sounds or sequences of sounds to appear are the less complex to coordinate at the articulatory level of articulatory gestures (Lohmander et al., 2017), and the first production of speech by children seems to be circumscribed to sounds related to the jaw (Green et al., 2000). In the same line, the phonetic repertoire of infants is restricted to phonemes that are primarily produced by the jaw (Green et al., 2002; MacNeilage et al., 2000). Green et al. (2000) claim that jaw muscles are essential for early speech and oral motor development and that the coordination of the upper, the lower lip, and the jaw improved during infancy. Moreover, some of the muscle functions that have been linked to speech are precisely chewing and biting, which are also fundamental for eating (Gernsbacher et al., 2008; LeBarton & Iverson, 2013).

In this regard, a relationship between the consistency of foods in the diet of preschool children and speech disorders has been observed (Vieira, 2013; Vieira et al., 2016). The findings of this study suggest that food consistency may have an impact on speech, since craniofacial growth and development are affected by this factor and that food consistency shows a significant association with variables that influence the functioning of the stomatognathic system. Other studies have shown that the activity of muscles involved in chewing can also be influenced by food consistency (e.g. soft foods can interfere negatively with craniofacial development and speech) (He & Kiliaridis, 2003; Lieberman et al., 2004; Pena et al., 2008). Furthermore, it has been proposed that the continued use of pureed foods should be discouraged, and children should be offered lumpy foods by the age of 8-10 months (Fewtrell et al., 2017).

There are additional factors that are known to influence orofacial development and eating behaviors, thus influencing speech, such as the presence of harmful oral habits. Regarding this, Nicolielo et al. (2009) stated that disturbances in oral habits (e.g. the use of pacifiers, digital sucking), structures morphology, or muscle tone may influence the feeding patterns of children. Similarly, a recent study (Pereira et al., 2017) found that both the presence and duration of harmful oral habits were associated with disturbances in the stomatognathic system, specifically regarding occlusion, breathing, and speech, according to the perception of the parents.

In contrast, a systematic review showed that there is still limited evidence regarding the relationship between feeding and speech sounds development, while the question of whether there is a connection between the type of feeding and speech sound disorders remained unanswered. The authors expressed the need to continue exploring this relationship, where future studies would have the task to clarify the specific type of speech sound disorder, using detailed assessments of speech (Burr et al., 2021).

Feeding and parenting are intimately associated, thus child feeding is a crucial aspect of mother-child interactions, and as the child keeps developing, parental practices play a determinant role in their feeding behavior (Greer et al., 2008; Hughes et al., 2005; Jansen et al., 2012; Ventura & Birch, 2008). The first year of life is critical for the introduction of new foods, as children begin to develop a preference for certain foods (Birch, 1998; UNICEF, 2018), and the process of chewing changes their routines. In this regard, the environment will be decisive in determining what and how a child eats (Ramos & Stein, 2000).

The parents' knowledge and behaviors concerning their children's nutrition are strongly influenced by their educational level (Blissett & Haycraft, 2008; Rapley, 2016). Studies show that educational level can influence how mothers feed their children (Blissett & Haycraft, 2008), because they may be best informed about the introduction of foods. Both educational level and family income can influence the attitudes and practices towards the child's eating behaviors (Northstone et al., 2001).

Studies have shown that children benefit from having the opportunity to explore food using their sense of smell, sight, and touch (Arden, 2010; Hausner et al., 2012). In this context, Baby Led Weaning (BLW) is a method of food introduction which is considered an alternative to the traditional method (which consists in gradually introducing solid foods by spoon-feeding the child with prepared purées) (Brown & Lee, 2011; Utami & Wanda, 2019; World Health Organization [WHO], 2009). BLW has gained popularity in several countries in Europe, although it is not particularly mentioned as part of the WHO's recommendations (Brown et al., 2017; Caroli et al., 2012). According to this method, the introduction of solid food should occur at 6 months (Rapley, 2011; Rapley & Murkett, 2008). Additionally, it is expected that children are included in family mealtimes and that they feed themselves from the beginning of complementary feeding, by receiving pieces of food (Rapley & Murkett, 2008). In the traditional method, on the other hand, it is common for the adult to start the feeding practice by offering soup or pureed food on a specific schedule (Butte et al., 2004; Swanepoel et al., 2020).

BLW appears to be linked to lower maternal anxiety (Brown & Lee, 2013), although these results are controversial (Fewtrell et al., 2017). Fewtrell et al. (2017) state that there is not enough evidence to draw conclusions regarding the BLW method. While there are studies indicating that self-directed feeding minimizes the risk of choking compared to traditional feeding practices (e.g. Fangupo et al., 2016), other studies indicate that although BLW has been linked to adequate weight gain in children, the potential risks of this method should be further investigated, in order to guarantee its safety (Gomez et al., 2020). Moreover, health professionals should consider the lack of clarity around these issues when providing information and advice to parents willing to follow the BLW method (D'Auria et al., 2018).

The present study was carried out with the aim to explore the eating routines and habits of Portuguese children aged 4 to 18 months, to analyze which method of food introduction (traditional or BLW) is most frequently used in Portugal, and to identify the parents' perceptions about the importance of food introduction for speech development. The variables of age, educational qualifications, and occupational status of the parents were considered in these analyses.

METHODS

This research was conducted in an ethical and responsible manner, with the formal approval of the Ethics Committee of Fernando Pessoa University (6/03/2017). An online self-report questionnaire about parents' perception, knowledge, and routines about food introduction methods and their relation to speech development was created using Google Forms. The questionnaire was distributed online through social media by Sociedade Portuguesa de Terapia da Fala. Before filling out the questionnaire, the participants were informed about the purpose of the study, as well as about the voluntary and anonymous nature of their participation and were asked to provide formal consent. The inclusion criteria were: Parents of children (i) between the ages of 4 and 18 months; (ii) with a neurotypical development; (iii) having initiated the process of solid food introduction. The questionnaire (see appendix) was available online between April 11, 2017, and May 12, 2017, and it was filled out by 297 parents.

Materials

The questionnaire developed by the authors (see appendix) was based on the literature that is currently available on child development and feeding transition at the ages of 6-18 months. After its creation, it was analyzed by a group of specialists composed of four speech-language pathologists (SLP) who specialized in the field of feeding, swallowing and speech and two nurses (specialized in Maternal and Child Care). After the first revision, the questionnaire was applied to a pilot group consisting of 3 mothers with different educational levels, in order to assess the content adequacy of the items through the think-aloud technique.

The final version of the questionnaire consisted of three main sections: Section I, which addresses the sociodemographic characterization of the participants (e.g. age, professional status, household constitution) with 15 questions of multiple choice and short answer; Section II, with 34 questions about the child's eating habits (e.g. consistency and textures in their current diet), including short open and closed answers; and Section III, that addresses the parents' perception about the importance of feeding for speech development (e.g. "food consistency/density influences the strength of the muscles used in speech"; "mashed foods require a higher level of more muscle activity compared to

solids"), with 19 items and a 5 points Likert scale (1 being "Totally Disagree" and 5 "Totally Agree").

Data Analysis

Non-parametric inferential tests were used for nominal and ordinal variables and parametric t-tests for quantitative variables. In all cases, the significance level was set at 0.05. Statistical analyses were performed using the SPSS software, version 24. An analysis of psychometric qualities like reliability, sensitivity, and validity was carried out before proceeding to data analysis and interpretation. The questionnaire showed high reliability (satisfactory internal consistency) with a Cronbach's alpha coefficient of 0.86. An exploratory factorial analysis was carried out to analyze the construct validity and dimensionality of the questionnaire, as well as a principal component analysis to identify the number of factors and the magnitude of factor loads. Previous to this, the KMO measure was used to determine the adequacy of the sample for Factor Analysis. A value of at least 0.60 was required and in this study, the KMO was 0.897. Bartlett's sphericity test was significant (X^2 (171) = 1917.268, p <0.001), showing that the correlation between items was adequate for principal component analysis.

RESULTS

Participants

A total of 337 responses were received. Forty of the responses were excluded due to not meeting the eligibility criteria, among which there were parents with children with developmental disturbances (n=12); children's age superior to 18 months (n=29); and not having initiated complementary solid food introduction (n=1). The final sample size was N=297. The demographic information of the participants is presented in Table 1.

The majority of the participants were women, with 9 of the participants being male. The mean age of the respondents was 30 years old (30 ± 4.3), with a minimum of 21 (n = 3) and a maximum of 50 years (n = 1).

Regarding the children, 52.2% were female and 47.8% were male; the mean age was 10.2 months (± 3.67), with a minimum age of 4 months (3.4%), and a maximum of 18 months (3.0%). The household consisted on average of 3.2 people (± 3), mostly composed of husband/wife/partner and children (89.6%). The participants had a mean of 1.2 children (± 0.52); 76.1% of the parents reported having only 1 child, and 3.7% stated having 3 children.

Table 1. Participants' characteristics.

Variable	Description	N	%
Educational Level of the Parents	9th grade	25	8.4
	12th grade	67	22.6
	Vocational qualification	19	6.4
	Bachelor's degree	1	.3
	Professional degree	127	42.8
	Master's degree	49	16.5
	PhD	8	2.7
	Other	1	.3
Marital Status	Married	145	48.8
	Civil partnership	121	40.7
	Single	28	9.4
	Divorced	2	.7
	Widowed	1	.3
Current Professional Situation	Unemployed	46	15.5
	Student	3	1.0
	Homemaker	8	2.7
	Professionally active	240	80.8
Children's Gender	Female	155	52.2
	Male	142	47.8
Form of Communication of the Children	Vocalizations	15	5.1
	Babbling	159	53.5
	Simple words	55	18.5
	Combination of words to form sentences	3	1.0
	Vocalizations + babbling	31	10.4
	Simple words + combination of words in sentences	2	.7
	Babbling + simple words	22	7.4
	Other combinations	10	3.4
Child's Health Status	Healthy child	291	98.0
	Another health situation	6	2.0
Parent	Father	9	3.3
	Mother	288	97.0
Household Members	Spouse	266	89.6
	Children	16	5.4
	Parents/ parents in law	2	.7
	Other relatives	13	4.4

Eating and Oral Habits of the Children

According to the participants' responses, the majority of the children stayed at home with their family (grandparents [29%] or parents [23.9%]) and a minority in nurseries (27.3%). Regarding eating habits, results indicated that 82.8% of the children were fed by their parents (see Table 2), and 53.9% of the parents answered that their children were breastfed (a much higher percentage if the 35% that reported using a combination of breast and bottle feeding is included). Concerning the use of a pacifier, 45.5% of the participants reported that their children used it. The range of ages between which pacifiers were used varied from 1 month to 18 months. Only 2.7% of the parents reported that their children had respiratory problems. Regarding dental eruption, 71.1% reported that teeth emerged at approximately 7 months (6.8 ± 1.9).

Concerning the introduction of complementary feeding, 30.0% of the parents responded that their children had a solid diet, and 27.9% used more than one type of food consistency (finger foods, purée, crushed, liquefied). The participants stated that they offered solid food uncut (33.0%), in pieces (19.2%), liquefied (15.8%), and crushed (6.4%) to their children. Most parents (90.0%) reported that they varied the consistency of the foods, 100% that they varied the flavors, and 94.9% varied the textures of the food offered to their children.

As for the introduction of new foods and flavors, 56.2% said that it was done using more than one option (soups and purees, offering to touch and taste, or putting the food on the plate so the child can explore).

Food refusal was mentioned by 29.6% of the participants, and it was attributed to the fact that their children did not enjoy certain foods (14.5%), due to being a new type of food (9.4%), or because the children did not like certain consistencies (4.4%). A small percentage of the parents (1.3%) reported other reasons for food refusal, such as vomiting and difficulties in chewing.

Regarding the methods of food introduction, 11.4% of the parents indicated being familiarized with the traditional method. BLW was known by 10.8% of the participants; 65.3% of the participants mentioned knowing both methods; 46.5% reported using one of the methods (with 28.3% using the traditional method), while 13.8% informed that they followed a combination of both methods.

Table 2. Characterization of the Children's Eating and Oral Habits.

Variable	Description	N	%
Who usually feeds the child?	Parents	246	82.8
	Grandparents	32	10.8
	Other caretakers (educator or uncles/aunts)	19	6.4
During the day your child stays with/at	Nursery	81	27.3
	Day Care Centre	20	6.7
	Grandparents' House	86	29.0
	In-home Provider	29	9.8
	Parents (at home)	71	23.9
	More than one option	10	3.4
How do you feed your baby?	Breastfeeding	160	53.9
	Bottle Feeding	33	11.1
	Both	104	35.0
Does your child use/or has used a pacifier?	Yes	83	27.9
	No	79	26.6
	Still uses	135	45.5
Does your child have a respiratory problem?	Yes	8	2.7
	No	289	97.3
What is the main food consistency in your child's current diet?	Liquid	10	3.4
	Paste	64	21.5
	Solid	89	30.0
	All	51	17.2
	More than one type of consistency	83	27.9
How are solid foods offered at home?	In pieces	57	19.2
	Crushed	19	6.4
	Liquified	47	15.8
	All	98	33.0
	More than one option	76	25.6
Do you usually vary the consistencies of the food offered?	Yes	269	90.6
	No	28	9.4
Do you usually vary the flavors of the food you offer your child?	Yes	297	100.0
	No	-	-
Do you usually vary the textures of the food you offer your child?	Yes	282	94.9
	No	15	5.1
How do you introduce new foods?	As soup/mash	61	20.5
	Offering to touch	1	.3
	Offering to taste	29	9.8
	Putting on the plate so the child can explore	27	9.1
	All	12	4.0
	More than one option	167	56.2

The child refuses some types of food/ flavors	Yes	88	29.6
	No	209	70.4
If yes, why do you think that happens?	Selectivity of food colors	2	.7
	Doesn't like certain flavors	43	14.5
	Is distracted by the television/tablet	-	-
	Doesn't like certain consistencies	13	4.4
	It is the first time a new food has been introduced	28	9.4
	Other reason	4	1.3
Have you ever heard about any of these methods of food introduction?	Traditional	34	11.4
	Baby-Led Weaning	32	10.8
	Do not know	37	12.5
	Both	194	65.3
Do you follow/ have you followed any in particular?	Yes	138	46.5
	No	159	53.5
If yes, which one?	Traditional	84	28.3
	Baby-Led Weaning	18	6.1
	Both	41	13.8

Parents' Perceptions about Feeding and Speech

Regarding the importance of feeding for speech (see table 3), 39.3% of the parents answered "Totally agree" to the question about the importance of using a method of introducing food. Additionally, 33.7% responded that they "totally agree" that food should be introduced at 6 months, and 51.5% fully agreed that the child's mealtimes should be shared with their family. Regarding the item "Introducing solid foods causes anxiety and stress", 32.3% of parents disagreed and 26.9% agreed.

When asked whether the introduction of solid foods at 6 months could lead to choking episodes, 35.7% of the participants answered that they neither agreed nor disagreed, while 18.9% agreed, and 25.9% disagreed with this statement. The majority of the parents (70.7%) reported that they fully agreed with the statement that children should be exposed to diverse textures of food.

Results also showed that 77.1% of the respondents agreed with the statement that negative experiences during feeding may result in the child refusing to eat.

In the item "Behavioral changes during feeding may reveal disturbances in oral sensitivity", 44.1% answered that they neither agreed nor disagreed. Concerning the food exploration by children, 63.6% of the parents answered that they fully agreed that children should explore the food with their hands. Regarding food consistency and density affecting the strength of the muscles used during speech production, 36% responded that they fully agreed with the statement.

On the statement "Eating pasty foods requires greater muscle activity, compared to solid foods", 37.4% of the parents responded that they neither agreed nor disagreed. Concerning the item "When food consistency is frequently pasty it can lead to incorrect tongue positioning and changes in facial muscles", 57.9% responded they neither agreed nor disagreed. In the item about chewing patterns, 20.5% stated that they agreed that at 9 months children presented a chewing pattern similar to adults. It was also observed that 38.7% of the parents agreed that eating solid food requires greater muscle activity, and 37.4% responded "totally agree" to the statement that disturbances in orofacial structures can affect speech.

On the item "Children should be prepared from an early age to eat harder and more fibrous foods", 34% of the parents neither agreed nor disagreed, and 27.3% agreed with the affirmation. Finally, in the item "Food introduction stimulates orofacial muscles, which makes the movements for speech more precise.", 36.7% of the respondents answered "Agree" and 34.3% "Totally agree".

Mean differences tests were applied between groups to analyze the global score of the responses (sum of all items) in relation to the parents' age, educational level, and professional status.

Regarding the mean differences in the total score between age groups, a significance of 0.385 was obtained (see Table 4). This means that the score did not vary significantly between younger parents (<30 years) and older parents (> 30 years), although the mean values were slightly higher for the latter.

Total scores differed significantly between groups with different educational levels ($p < 0.05$). As for the occupational situation of the parents, there were no statistically significant differences between parents with and without professional activity ($p = ns$).

The number of children in a family was considered an important variable to explore. Thus, its correlation with the total score of the questionnaire was tested using the Spearman correlation coefficient (rs). A statistically significant negative correlation was found, indicating that the more children in a family, the lower the score ($r = -117$, $p < 0.05$).

The parents' knowledge about food introduction methods showed a significant correlation with the total score of the questionnaire ($p<0.001$, $r=0.207$), meaning that the more knowledge the parents had about these methods, the higher their total score was in the questionnaire.

Table 3. Parents' Perceptions about the Importance of Feeding for Speech.

Parents' Perceptions	Totally disagree	Disagree	Neither agree nor disagree	Agree	Totally Agree
The use of a method for introducing baby food is important.	5 (1.7)	17 (5.7)	59 (19.9)	99 (33.3)	117 (39.3)
The introduction of solid food should be done at 6 months old.	11 (3.7)	60 (20.2)	59 (19.9)	67 (22.6)	100 (33.7)
Children should have their meals at the same time as the rest of the family.	5 (1.7)	7 (2.4)	32 (10.8)	100 (33.7)	153 (51.5)
Introducing solid foods causes anxiety and stress.	42 (14.1)	96 (32.3)	50 (16.8)	80 (26.9)	29 (9.8)
The introduction of solid foods at 6 months can lead to choking episodes.	30 (10.1)	77 (25.9)	106 (35.7)	56 (18.9)	28 (9.4)
Children should be exposed to varied textures and flavors.	5 (1.7)	0	0	82 (27.6)	210 (70.7)
Negative experiences during feeding can result in the children refusing to eat.	7 (2.7)	19 (6.4)	41 (13.8)	118 (39.7)	111 (37.4)
Behavioral changes during feeding may reveal disturbances in oral sensitivity.	7 (2.4)	20 (6.7)	131 (44.1)	84 (28.3)	55 (18.5)
It is important for children to explore food with their hands.	5 (1.7)	5 (1.7)	13 (4.4)	85 (28.6)	189 (63.6)
Food consistency/density influences the strength of the muscles used for speech.	10 (3.4)	18 (6.1)	78 (26.3)	84 (28.3)	107 (36.0)
Eating pasty foods requires greater muscle activity, compared to solid foods.	22 (7.4)	33 (11.1)	111 (37.4)	80 (26.9)	51 (17.2)
When the consistency of the food is frequently pasty it can lead to incorrect tongue positioning and changes in facial muscles.	11 (3.7)	42 (14.1)	172 (57.9)	39 (13.1)	33 (11.1)
At 9 months the child already has a chewing pattern similar to adults.	22 (7.4)	74 (23.9)	118 (39.7)	61 (20.5)	25 (8.4)
Eating solid food requires greater muscle activity.	5 (1.7)	11 (3.7)	73 (24.6)	118 (39.7)	90 (30.3)
Disturbances in orofacial structures can affect speech.	7 (2.4)	10 (3.4)	58 (19.5)	111 (37.4)	111 (37.4)
A balanced chewing pattern stimulates all the facial structures.	4 (1.3)	7 (2.4)	47 (15.8)	115 (38.7)	124 (41.8)
Children should be prepared from an early age to eat harder and more fibrous foods.	15 (5.1)	30 (10.1)	101 (34.0)	81 (27.3)	70 (23.6)
Food introduction stimulates the orofacial muscles, which makes the movements for speech more precise.	6 (2.0)	6 (2.0)	74 (24.9)	109 (36.7)	102 (34.3)
It is important to obtain information about feeding from resources/healthcare professionals.	4 (1.3)	4 (1.3)	23 (7.7)	101 (34.0)	165 (55.6)

Table 4. Analysis of Differences According to the Parents' Age, Educational Level, and Professional Status.

Variable	**Description**	**M**	**SD**	***U***	***p***
Age Group of the Parents	< 30 years	71.769	8.715	10281.000	0.385
	> 30 years	72.031	10.826		
Educational Qualifications of the Parents	Basic or secondary education	69.603	10.866	8021.500	0.002
	University degree	73.221	9.029		
Professional Situation	Professionally Active	72.167	9.672	6341.000	0.392
	Non-Active	70.842	10.887		

M- Mean; SD - Standard Deviation; U- Mann-Whitney test; p – p-value

DISCUSSION

The present study explored the eating routines and habits of Portuguese children aged 4 to 18 months. This was achieved through a self-report online questionnaire applied to parents, particularly focusing on methods of food introduction and on parents' perceptions about the importance of food introduction for speech development.

According to the responses, the majority of parents fed their children using breastfeeding, or a combination of breast and bottle feeding. These results are in line with WHO and UNICEF (United Nations Children's Emergency Fund) recommendations that describe several benefits of breastfeeding for children and their mothers (Akinyinka et al., 2016). Despite this, recent studies have shown that in low and middle-income countries a low percentage of children younger than 6 months are exclusively breastfed (Elyas et al., 2017; Jama et al., 2020; Mensah et al., 2017; Victora et al., 2016).

Regarding methods of food introduction, most parents reported that they offered new foods in the form of soups or purees to their children. On the other hand, the majority of the parents stated that they varied the consistency and texture of food frequently, while all of them answered that they varied the flavors. These results suggest an adequate practice among Portuguese parents, in line with the study by Coulthard et al. (2009) where the importance of introducing different textures as early as possible and according to age of the child is emphasized.

The WHO specifies that mashed foods could be given at 4–7 months, mashed; chopped foods and finger foods at 7–12 months, and solid family food should be eaten at 12–24 months (Fleischer Michaelsen et al., 2003). Children should be offered food with the correct texture and consistency for their developmental phase due to its importance for the strengthening of orofacial muscles and structures (Arden, 2010; Hausner et al., 2012; Nicklaus et al., 2015).

The precise and coordinated movements required for chewing are fundamental for the harmonious growth of all the oral structures, contributing to the balance of facial structures and adequate speech production (Martinez & Puelles, 2011; Nicklaus et al., 2015; Reilly et al., 1995). Parents who are informed about these issues are more likely to allow their children to try new foods (diversifying texture, flavors, colors, size, shape, and consistency) (Nicklaus et al., 2015; Rapley, 2011). However, a parent questionnaire realized in France found that a large percentage of parents received information about complementary feeding, although not specifically about food textures. This was reported by them as their most difficult issue with complementary feeding (Boulanger & Vernet, 2018).

Regarding the statement "the introduction of solid foods at 6 months can lead to choking episodes", the parents' responses were dispersed (35.7% of the parents answered that they neither agreed nor disagreed with the sentence, while 18.9% agreed, and 25.9% disagreed). Concerning the aforementioned, the fear of choking is an aspect that has been previously studied and associated with postponing the introduction of chopped foods (Blossfeld et al., 2007; Boulanger & Vernet, 2018). Furthermore, most parents (77.1%) agreed that negative experiences during feeding may increase the child's food refusal. In this sense, effective food practices by the parents may influence the child's preferences regarding flavor and consistency, as well as their appetite regulation, which could affect their life-long choices (Vaughn et al., 2016). Thus, we suggest that parents should receive information on how to prevent choking episodes from healthcare professionals.

A large number of the parents reported knowing both BLW and the traditional method of food introduction. Similarly, a recent study carried out on 216 Spanish parents found that 98.6% of the participants reported being familiar with BLW (Martí-Solsona et al., 2020). In contrast, a 2011 study performed in the UK by Brown and Lee which surveyed 384 mothers with children 6-12 months old, reported that only a minority had ever heard of the BLW method. In the present research, the number of participants who claimed to know the BLW method was lower than those who were aware of the traditional method, however, more than half of the parents reported knowing both methods. These results are in line with D'Auria et al. (2018), who affirm that the BLW method has grown in popularity in recent years.

Notwithstanding the above, when participants were asked if they followed a specific method of introducing new foods, approximately half of them reported not following a particular one. This is probably related to the fact that, traditionally, parents are taught that complementary foods should be presented as a purée and using a spoon, starting from the age of 6 months and gradually progressing to mashed and chopped foods, until the child is able to eat the same food as the rest of the family, at around one year of age (WHO, 2009).

Parents who answered they followed a specific method of introducing food stated that they use the traditional method exclusively, while a very small percentage followed only the BLW method. This may be because although BLW seems to be known by parents, using this method implies educating

themselves about nutritional aspects and carefully preparing the food, in order to avoid any possible risks for their children (D'Auria et al., 2018). BLW has been associated with positive mealtime behaviors, which reinforces the importance of avoiding pressuring the children during mealtimes (Campeau et al., 2021).

Concerning the use of pacifiers, a large number of participants (45%) referred that their children used them, with the age range being 1 to 18 months. A nationwide survey conducted in Brazil exploring the prevalence of breastfeeding found that 42.6% of children younger than one year used pacifiers (Ministério Da Saúde, 2009). Commonly, the use of pacifiers is associated with negative consequences such as speech delay. However, recent studies have highlighted the fact that the evidence associating the use of pacifiers with speech difficulties is scarce (e.g. Strutt et al., 2021). We suggest that this information should be used by professionals when they guide parents in their decisions regarding this subject.

With regards to the perceptions about the importance of feeding for speech development, most of the parents answered "Agree" (36%) or "Totally agree" (34,3%). The scores were not significantly different when comparing the age of the parents (younger than 30 years old versus older than 30 years old). In turn, the total scores differed significantly when comparing educational backgrounds; parents with higher education showed greater awareness of the importance of feeding for speech. In the same line, several studies have shown that education level can influence how mothers feed their children (e.g. Blissett & Haycraft, 2008; Sausenthaler et al., 2007), as they may have more access to information about the introduction of foods. Educational level and family income can influence the attitudes and practices around the eating behaviours of children (Rapley, 2016). Indeed, a study carried out in Bangladesh showed that mothers with no formal education presented a higher risk of missing the correct timing for complementary food introduction (Kabir et al., 2012). Studies have also shown a correlation between BLW and a higher level of education, as well as professional activity (Brown & Lee, 2011; Cameron et al., 2013). This may be linked to the fact that people with a higher level of education may have better access to the internet, as well as to sources of information about BLW.

The correlation between the parents' professional situation and the total score on the questionnaire was not significant. This contrasts with the study by Brown & Lee (2011), where it was found that mothers who used BLW returned to their professional activity later than mothers using the traditional method.

The results of this study also indicate that the higher the number of children in a family, the less importance is attributed by parents to the relationship between feeding and speech. This could be related to the fact that parents show a greater predisposition to seeking new information when they have their first child (e.g. Hesketh & Campbell, 2010). In addition, it is important to note that parents of small children are faced with many challenges that generate feelings of vulnerability, doubts, and stress, which complicate their decision-making processes, particularly when it comes to food decisions (Stanton & Guion, 2013).

Considering the aforementioned results, it is concluded that all the actors involved in child feeding, including healthcare professionals, childcare providers, public health authorities, and professionals involved in communicating recommendations to parents, should play a specific role in the distribution of correct information, as there seems to be a relationship between education and child health (Arikpo et al., 2018; Aslam & Kingdon, 2012; Boulanger & Vernet, 2018; Bryanton et al., 2013; Rossi et al., 2008).

A noteworthy aspect regarding the gender of the participants in this study is that there was a low percentage of male parents (3.3 %). This is also observed in Martí-Solsona et al. (2020), a fact that reflects the traditional gender roles. Complementary feeding practices are influenced by several factors, and the practices of individuals occur according to their knowledge, time, social, rules, and familiar norms and dynamics (UNICEF, 2020).

Studies (Kulkarni et al., 2020; Nankumbi & Muliira, 2015) have shown that traditional gender roles can impact negatively child health through unequal family decision-making and reduced paternal support. Another important aspect to consider is that fathers are not usually included in studies on feeding practices (Harris et al., 2018). This is an essential aspect to contemplate for future studies.

Based on these results as well as on previous findings, we suggest that speech-language pathologists should assess the orofacial functions of children with orofacial and feeding disturbances, and carry out interventions that include informing the parents and/or caregivers about orofacial myology, focusing on improving orofacial skills (Morris & Klein, 2000; Sheppard, 2008). One of the responsibilities of SLPs is to provide recommendations for the parents regarding complementary food introduction, in order to guarantee the correct development of the structures involved both in feeding and speech (Palladino et al., 2007). Hence, SLPs should be aware of the family's habits, culture, and beliefs when treating a child with feeding difficulties, considering the evident influence

of these factors on feeding behavior and oral motor development (Greer et al., 2008; Hughes et al., 2005).

Finally, it is important to mention that this study presents some limitations that could restrict its generalization to the national population, such as the small sample size and the educational level of the participants, which was higher than the average educational level of the Portuguese population (Instituto Nacional de Estatística - *Statistics Portugal*) This variable influence feeding practices, and could have an impact on the results. Furthermore, future studies should include a more equal number between mothers and fathers to analyse the perceptions of both regarding food introduction methods.

CONCLUSION

This study aimed to characterize, through a self-report online questionnaire, the eating routines, and habits of Portuguese children aged 4 to 18 months, analyze which methods of food introduction are most frequently used in Portugal, and understand the parents' perceptions about the importance of food introduction for speech development.

The majority of the Portuguese mothers participating in this study answered that they breastfeed their children or breastfeed in combination with bottle feeding. Additionally, they stated that they introduce new foods to their children in the form of soups or purees, and that they vary flavors, textures, and consistencies frequently.

Although the results show that a large percentage of parents mentioned knowing both traditional and BLW methods of food introduction, there was a higher percentage of parents who reported using the traditional method, compared to BLW. Results were not significant regarding the relationship between the age of the parents and their perception of the influence of feeding on speech. In contrast, parents with a higher level of education showed greater awareness of the importance of feeding for speech development, with no significant differences in relation to their professional situation. Parents with more children showed less awareness regarding the importance of the relationship between feeding and speech.

Healthcare professionals who work with families should pay attention to, and clarify the doubts that parents have regarding complementary feeding, and they should support parents in their decision-making processes. Speech-language pathologists have an important role in the education of parents about the importance of oral-motor functions, food introduction, and speech production.

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REFERENCES

Adams-Chapman, I., Bann, C., Vaucher, Y., & Stoll, B. (2013). Association between feeding difficulties and language delay in preterm infants using Bayley Scales of Infant Development-Third Edition. *The Journal of Pediatrics*, *163*(3). https://doi.org/10.1016/j.jpeds.2013.03.006

Akinyinka, M., Olatona, F., & Oluwole, E. (2016). Breastfeeding Knowledge and Practices among Mothers of Children under 2 Years of Age Living in a Military Barrack in Southwest Nigeria. *International Journal of MCH and AIDS*, *5*(1). https://pubmed.ncbi.nlm.nih.gov/27622007/

Arden, M. (2010). Conflicting influences on UK mothers' decisions to introduce solid foods to their infants. *Maternal & Child Nutrition*, *6*(2). https://doi.org/10.1111/j.1740-8709.2009.00194.x

Arikpo, D., Edet, E., Chibuzor, M., Odey, F., & Caldwell, D. (2018). Educational interventions for improving primary caregiver complementary feeding practices for children aged 24 months and under. *The Cochrane Database of Systematic Reviews*, *5*(5). https://doi.org/10.1002/14651858.CD011768.pub2

Aslam, M., & Kingdon, G. G. (2012). Parental Education and Child Health—Understanding the Pathways of Impact in Pakistan. *World Development*, *40*(10), 2014–2032. https://doi.org/10.1016/j.worlddev.2012.05.007

Birch, L. (1998). Psychological influences on the childhood diet. *The Journal of Nutrition*, *128*(2 Suppl). https://doi.org/10.1093/jn/128.2.407S

Blissett, J., & Haycraft, E. (2008). Are parenting style and controlling feeding practices related? *Appetite*, *50*(2–3). https://doi.org/10.1016/j.appet.2007.10.003

Blossfeld, I., Collins, A., Kiely, M., & Delahunty, C. (2007). Texture preferences of 12-month-old infants and the role of early experiences. *Food Quality and Preference*, *18*(2), 396–404. https://doi.org/10.1016/j.foodqual.2006.03.022

Boulanger, A. M., & Vernet, M. (2018). Introduction of new food textures during complementary feeding: Observations in France. *Archives de Pediatrie : Organe Officiel de La Societe Francaise de Pediatrie*, *25*(1). https://doi.org/10.1016/j.arcped.2017.10.025

Brown, A., Jones, S. W., & Rowan, H. (2017). Baby-Led Weaning: The Evidence to Date. *Current Nutrition Reports*, *6*(2), 148–156. https://doi.org/10.1007/s13668-017-0201-2

Brown, A., & Lee, M. (2011). A descriptive study investigating the use and nature of baby-led weaning in a UK sample of mothers. *Maternal & Child Nutrition*, *7*(1). https://doi.org/10.1111/j.1740-8709.2010.00243.x

Brown, A., & Lee, M. (2013). An exploration of experiences of mothers following a baby-led weaning style: Developmental readiness for complementary foods. *Maternal & Child Nutrition*, *9*(2). https://doi.org/10.1111/j.1740-8709.2011.00360.x

Bryanton, J., Beck, C., & Montelpare, W. (2013). Postnatal parental education for optimizing infant general health and parent-infant relationships. *The Cochrane Database of Systematic Reviews*, *11*. https://doi.org/10.1002/14651858.CD004068.pub4

Burr, S., Harding, S., Wren, Y., & Deave, T. (2021). The Relationship between Feeding and Non-Nutritive Sucking Behaviours and Speech Sound Development: A Systematic Review. *Folia Phoniatrica et Logopaedica : Official Organ of the International Association of Logopedics and Phoniatrics (IALP)*, *73*(2). https://doi.org/10.1159/000505266

Butte, N., Cobb, K., Dwyer, J., Graney, L., Heird, W., & Rickard, K. (2004). The Start Healthy Feeding Guidelines for Infants and Toddlers. *Journal of the American Dietetic Association*, *104*(3). https://doi.org/10.1016/j.jada.2004.01.027

Cameron, S., Taylor, R., & Heath, A. (2013). Parent-led or baby-led? Associations between complementary feeding practices and health-related behaviours in a survey of New Zealand families. *BMJ Open*, *3*(12). https://doi.org/10.1136/bmjopen-2013-003946

Campeau, M., Philippe, S., Martini, R., & Fontaine-Bisson, B. (2021). The baby-led weaning method: A focus on mealtime behaviours, food acceptance and fine motor skills. *Nutrition Bulletin*, *46*(4), 476–485. https://doi.org/10.1111/nbu.12532

Caroli, M., Mele, R. M., Tomaselli, M. A., Cammisa, M., Longo, F., & Attolini, E. (2012). Complementary feeding patterns in Europe with a special focus on Italy. *Nutrition, Metabolism and Cardiovascular Diseases*, *22*(10), 813–818. https://doi.org/10.1016/j.numecd.2012.07.007

Coulthard, H., Harris, G., & Emmett, P. (2009). Delayed introduction of lumpy foods to children during the complementary feeding period affects child's food acceptance and feeding at 7 years of age. *Maternal & Child Nutrition*, *5*(1), 75. https://doi.org/10.1111/j.1740-8709.2008.00153.x

D'Auria, E., Bergamini, M., Staiano, A., Banderali, G., Pendezza, E., Penagini, F., Zuccotti, G. V., Peroni, D. G., & Pediatrics, on behalf of the I. S. of. (2018). Baby-led weaning: What a systematic review of the literature adds on. *Italian Journal of Pediatrics*, *44*. https://doi.org/10.1186/s13052-018-0487-8

Elyas, L., Mekasha, A., Admasie, A., & Assefa, E. (2017). Exclusive Breastfeeding Practice and Associated Factors among Mothers Attending Private Pediatric and Child Clinics, Addis Ababa, Ethiopia: A Cross-Sectional Study. *International Journal of Pediatrics*, *2017*, 8546192. https://doi.org/10.1155/2017/8546192

Fangupo, L., Heath, A., Williams, S., Erickson Williams, L., Morison, Fleming, E., Taylor, B., Wheeler, B., & Taylor, R. (2016). A Baby-Led Approach to Eating Solids and Risk of Choking. *Pediatrics*, *138*(4). https://doi.org/10.1542/peds.2016-0772

Fewtrell, M., Bronsky, J., Campoy, C., Domellöf, M., Embleton, N., Fidler Mis, N., Hojsak, I., Hulst, J. M., Indrio, F., Lapillonne, A., & Molgaard, C. (2017). Complementary Feeding: A Position Paper by the European Society for Paediatric Gastroenterology, Hepatology, and Nutrition (ESPGHAN) Committee on Nutrition. *Journal of Pediatric Gastroenterology and Nutrition*, *64*(1), 119–132. https://doi.org/10.1097/MPG.0000000000001454

Fleischer Michaelsen, K., Weaver, L., Branca, F., & Robertson, A. (2003). *Feeding and nutrition of infants and young children: Guidelines for the WHO European Region, with emphasis on the former Soviet countries*. World Health Organization. Regional Office for Europe. https://apps.who.int/iris/handle/10665/272658

Gernsbacher, M. A., Sauer, E. A., Geye, H. M., Schweigert, E. K., & Goldsmith, H. H. (2008). Infant and toddler oral- and manual-motor skills predict later speech fluency in autism. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *49*(1), 43. https://doi.org/10.1111/j.1469-7610.2007.01820.x

Gomez, M. S., Novaes, A. P. T., Silva, J. P. da, Guerra, L. M., & Possobon, R. de F. (2020). Baby-led weaning, panorama da nova abordagem sobre introdução alimentar: Revisão integrativa de literatura. *Revista Paulista de Pediatria*, *38*. https://doi.org/10.1590/1984-0462/2020/38/2018084

Green, J., & Nip, I. (2010). Some organization principles in early speech development. En *Speech Motor Control: New Developments in Basic and Applied Research* (pp. 171–188). https://doi.org/10.1093/acprof:oso/9780199235797.003.0010

Green, J. R., Moore, C. A., Higashikawa, M., & Steeve, R. W. (2000). The Physiologic Development of Speech Motor Control: Lip and Jaw Coordination. *Journal of Speech, Language, and Hearing Research: JSLHR*, *43*(1), 239. https://doi.org/10.1044/jslhr.4301.239

Green, J. R., Moore, C. A., & Reilly, K. J. (2002). The Sequential Development of Jaw and Lip Control for Speech. *Journal of Speech, Language, and Hearing Research : JSLHR*, *45*(1), 66. https://doi.org/10.1044/1092-4388(2002/005)

Greer, A., Gulotta, C., Masler, E., & Laud, R. (2008). Caregiver Stress and Outcomes of Children with Pediatric Feeding Disorders Treated in an Intensive Interdisciplinary Program. *Journal of pediatric psychology*, *33*, 612–620. https://doi.org/10.1093/jpepsy/jsm116

Harris, H. A., Jansen, E., Mallan, K. M., Daniels, L., & Thorpe, K. (2018). Do Dads Make a Difference? Family Feeding Dynamics and Child Fussy Eating. *Journal of Developmental & Behavioral Pediatrics*, *39*(5), 415–423. https://doi.org/10.1097/DBP.0000000000000566

Hausner, H., Olsen, A., & Møller, P. (2012). Mere exposure and flavour–flavour learning increase 2–3year-old children's acceptance of a novel vegetable. *Appetite*, *58*(3), 1152–1159. https://doi.org/10.1016/j.appet.2012.03.009

He, T., & Kiliaridis, S. (2003). Effects of masticatory muscle function on craniofacial morphology in growing ferrets (Mustela putorius furo). *European Journal of Oral Sciences*, *111*(6), 510–517. https://doi.org/10.1111/j.0909-8836.2003.00080.x

Hesketh, K. D., & Campbell, K. J. (2010). Interventions to prevent obesity in 0-5 year olds: An updated systematic review of the literature. *Obesity (Silver Spring, Md.)*, *18 Suppl 1*, S27-35. https://doi.org/10.1038/oby.2009.429

Hughes, S. O., Power, T. G., Orlet Fisher, J., Mueller, S., & Nicklas, T. A. (2005). Revisiting a neglected construct: Parenting styles in a child-feeding context. *Appetite*, *44*(1), 83–92. https://doi.org/10.1016/j.appet.2004.08.007

Jama, A., Gebreyesus, H., Wubayehu, T., Gebregyorgis, T., Teweldemedhin, M., Berhe, T., & Berhe, N. (2020). Exclusive breastfeeding for the first six months of life and its associated factors among children age 6-24 months in Burao district, Somaliland. *International Breastfeeding Journal*, *15*(1), 5. https://doi.org/10.1186/s13006-020-0252-7

Jansen, E., Daniels, L. A., & Nicholson, J. M. (2012). The dynamics of parenting and early feeding – constructs and controversies: A viewpoint. *Early Child Development and Care*, *182*(8), 967–981. https://doi.org/10.1080/03004430.2012.678593

Kabir, I., Khanam, M., Agho, K. E., Mihrshahi, S., Dibley, M. J., & Roy, S. K. (2012). Determinants of inappropriate complementary feeding practices in infant and young children in Bangladesh: Secondary data analysis of Demographic Health Survey 2007. *Maternal & Child Nutrition*, *8*(Suppl 1), 11. https://doi.org/10.1111/j.1740-8709.2011.00379.x

Kent, R. D., & Murray, A. D. (1982). Acoustic features of infant vocalic utterances at 3, 6, and 9 months. *The Journal of the Acoustical Society of America*, *72*(2), 353–365. https://doi.org/10.1121/1.388089

Kulkarni, S., Frongillo, E. A., Cunningham, K., Moore, S., & Blake, C. E. (2020). Women's bargaining power and child feeding in Nepal: Linkages through nutrition information. *Maternal & Child Nutrition*, *16*(1), e12883. https://doi.org/10.1111/mcn.12883

LeBarton, E. S., & Iverson, J. M. (2013). Fine Motor Skill Predicts Expressive Language in Infant Siblings of Children with Autism. *Developmental Science*, *16*(6). https://doi.org/10.1111/desc.12069

Lieberman, D. E., Krovitz, G. E., Yates, F. W., Devlin, M., & St. Claire, M. (2004). Effects of food processing on masticatory strain and craniofacial growth in a retrognathic face. *Journal of Human Evolution*, *46*(6), 655–677. https://doi.org/10.1016/j.jhevol.2004.03.005

Lohmander, A., Lundeborg, I., & Persson, C. (2017). SVANTE – The Swedish Articulation and Nasality Test – Normative data and a minimum standard set for cross-linguistic comparison. *Clinical Linguistics & Phonetics*, *31*(2), 137–154. https://doi.org/10.1080/02699206.2016.1205666

MacNeilage, P. F., Davis, B. L., Kinney, A., & Matyear, C. L. (2000). The Motor Core of Speech: A Comparison of Serial Organization Patterns in Infants and Languages. *Child Development*, *71*(1), 153–163. https://www.jstor.org/stable/1132228

Malas, K., Trudeau, N., Chagnon, M., & McFarland, D. H. (2015). Feeding–swallowing difficulties in children later diagnosed with language impairment. *Developmental Medicine & Child Neurology*, *57*(9), 872–879. https://doi.org/10.1111/dmcn.12749

Martinez, S., & Puelles, E. (2011). Functional anatomy of the oromotor system. En M. Roigh-Quilis & L. Pennington (Eds.), *Oromotor disorders in childhood* (pp. 5–21). Viguera Editores. https://www.viguera.com/es/libros/4-oromotor-disorders-in-childhood.html

Martí-Solsona, E., González-Chordá, V. M., Andreu-Pejo, L., Cervera-Gasch, Á., Valero-Chillerón, M. J., & Mena-Tudela, D. (2020). Parents' Perception of the Complementary Baby-Led Weaning Feeding Method: A Validation Study. *Nursing Reports*, *10*(2), 115. https://doi.org/10.3390/nursrep10020015

Mensah, K. A., Acheampong, E., Anokye, F. O., Okyere, P., Appiah-Brempong, E., & Adjei, R. O. (2017). Factors influencing the practice of exclusive breastfeeding among nursing mothers in a peri-urban district of Ghana. *BMC Research Notes*, *10*(1), 466. https://doi.org/10.1186/s13104-017-2774-7

Ministério Da Saúde. (2009). *II Pesquisa de Prevalência de Aleitamento Materno nas Capitais Brasileiras e Distrito Federal* (C; Série C. Projetos, Programas e Relatórios, p. 108). Secretaria de Atenção à Saúde, Departamento de Ações Programáticas e Estratégicas. https://bvsms.saude.gov.br/bvs/publicacoes/pesquisa_prevalencia_aleitamento_materno.pdf

Mogren, Å., Sjögreen, L., Barr Agholme, M., & McAllister, A. (2020). Orofacial function in children with Speech Sound Disorders persisting after the age of six years. *International Journal of Speech-Language Pathology*, *22*(5), 526–536. https://doi.org/10.1080/17549507.2019.1701081

Morris, S. E., & Klein, M. D. (2000). *Pre-feeding Skills: A Comprehensive Resource for Mealtime Development*. Pro-Ed.

Namasivayam, A. K., Coleman, D., O'Dwyer, A., & van Lieshout, P. (2020). Speech Sound Disorders in Children: An Articulatory Phonology Perspective. *Frontiers in Psychology*, *10*, 2998. https://doi.org/10.3389/fpsyg.2019.02998

Nankumbi, J., & Muliira, J. K. (2015). Barriers to Infant and Child-feeding Practices: A Qualitative Study of Primary Caregivers in Rural Uganda. *Journal of Health, Population, and Nutrition*, *33*(1), 106–116. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4438654/

Nicklaus, S., Demonteil, L., & Tournier, C. (2015). Modifying the texture of foods for infants and young children. En J. Chen & A. Rosenthal (Eds.), *Modifying Food Texture* (pp. 187–222). Woodhead Publishing. https://doi.org/10.1016/B978-1-78242-334-8.00008-0

Nicolielo, A. P., Gross, C., Berretin-Felix, G., & Machado, M. A. M. de P. (2009). Fatores interferentes na alimentação de crianças de 17 a 25 meses de uma creche municipal. *Revista CEFAC*, *11*, 291–297. https://doi.org/10.1590/S1516-18462009000700003

Northstone, K., Emmett, P., & Nethersole, F. (2001). The effect of age of introduction to lumpy solids on foods eaten and reported feeding difficulties at 6 and 15 months. *Journal of human nutrition and dietetics : the official journal of the British Dietetic Association*, *14*, 43–54. https://doi.org/10.1046/j.1365-277X.2001.00264.x

Palladino, R. R. R., Cunha, M. C., & Souza, L. A. de P. (2007). Language and eating problems in children: Co-occurrences or coincidences? *Pro-Fono: Revista De Atualizacao Cientifica*, *19*(2), 205–214. https://doi.org/10.1590/s0104-56872007000200009

Pena, C. R., Pereira, M. M. de B., & Bianchini, E. M. G. (2008). Características do tipo de alimentação e da fala de crianças com e sem apinhamento dentário. *Revista CEFAC*, *10*, 58–67. https://doi.org/10.1590/S1516-18462008000100009

Pereira, T. S., Oliveira, F. de, & Cardoso, M. C. de A. F. (2017). Associação entre hábitos orais deletérios e as estruturas e funções do sistema estomatognático: Percepção dos responsáveis. *CoDAS*, *29*(3). https://doi.org/10.1590/2317-1782/20172015301

Ramos, M., & Stein, L. M. (2000). Development of children's eating behavior. *Jornal de Pediatria*, *76*(8), 229–237. https://doi.org/10.2223/JPED.160

Rapley, G. (2011). Baby-led weaning: Transitioning to solid foods at the baby's own pace. *Community practitioner : the journal of the Community Practitioners' & Health Visitors' Association*, *84*(6), 20–23.

Rapley, G. (2016). Are puréed foods justified for infants of 6 months? What does the evidence tell us? *Journal of Health Visiting*, *4*, 289–295. https://doi.org/10.12968/johv.2016.4.6.289

Rapley, G., & Murkett, T. (2008). *Baby-led Weaning: Helping Your Baby to Love Good Food*. Vermilion.

Reilly, S., Skuse, D., Mathisen, B., & Wolke, D. (1995). The objective rating of oral motor function during feeding. *Dysphagia*, *10*, 177–191. https://doi.org/10.1007/BF00260975

Rossi, A., Moreira, E. A. M., & Rauen, M. S. (2008). Determinantes do comportamento alimentar: Uma revisão com enfoque na família. *Revista de Nutrição*, *21*, 739–748. https://doi.org/10.1590/S1415-52732008000600012

Sampallo-Pedroza, R., Cardona-López, L., & Ramírez-Gómez, K. (2015). Description of oral-motor development from birth to six years of age. *Revista de la Facultad de Medicina*, *62*, 593–604. https://doi.org/10.15446/revfacmed.v62n4.45211

Sausenthaler, S., Kompauer, I., Mielck, A., Borte, M., Herbarth, O., & Schaaf, B. (2007). Impact of parental education and income inequality on children's food intake. *Public health nutrition*, *10*, 24–33. https://doi.org/10.1017/S1368980007193940

Sheppard, J. J. (2008). Using Motor Learning Approaches for Treating Swallowing and Feeding Disorders: A Review. *Language, Speech, and Hearing Services in Schools*, *39*(2), 227–236. https://doi.org/10.1044/0161-1461(2008/022)

Smith, A., & Zelaznik, H. N. (2004). Development of functional synergies for speech motor coordination in childhood and adolescence. *Developmental Psychobiology*, *45*(1), 22–33. https://doi.org/10.1002/dev.20009

Stanton, J., & Guion, D. (2013). Taking Advantage of a Vulnerable Group? Emotional Cues in Ads Targeting Parents. *The Journal of Consumer Affairs*, *47*(3), 485–517. https://www.jstor.org/stable/23859840

Strutt, C., Khattab, G., & Willoughby, J. (2021). Does the duration and frequency of dummy (pacifier) use affect the development of speech? *International Journal of Language & Communication Disorders*, *56*(3), 512–527. https://doi.org/10.1111/1460-6984.12605

Swanepoel, L., Henderson, J., & Maher, J. (2020). Mothers' experiences with complementary feeding: Conventional and baby-led approaches. *Nutrition & Dietetics*, *77*(3), 373–381. https://doi.org/10.1111/1747-0080.12566

UNICEF. (2018, julio 31). *Capture the Moment – Early initiation of breastfeeding: The best start for every newborn*. UNICEF Data. https://data.unicef.org/resources/capture-the-moment/

UNICEF. (2020). *Improving Young Children's Diets During the Complementary Feeding Period – UNICEF Programming Guidance, 2020*. https://www.unicef.org/media/93981/file/Complementary-Feeding-Guidance-2020.pdf

Utami, A. F., & Wanda, D. (2019). Is the baby-led weaning approach an effective choice for introducing first foods? A literature review. *Enfermería Clínica*, *29*, 87–95. https://doi.org/10.1016/j.enfcli.2019.04.014

Vaughn, A. E., Ward, D. S., Fisher, J. O., Faith, M. S., Hughes, S. O., Kremers, S. P. J., Musher-Eizenman, D. R., O'Connor, T. M., Patrick, H., & Power, T. G. (2016). Fundamental constructs in food parenting practices: A content map to guide future research. *Nutrition Reviews*, *74*(2), 98–117. https://doi.org/10.1093/nutrit/nuv061

Ventura, A. K., & Birch, L. L. (2008). Does parenting affect children's eating and weight status? *International Journal of Behavioral Nutrition and Physical Activity*, *5*(1), 15. https://doi.org/10.1186/1479-5868-5-15

Victora, C. G., Bahl, R., Barros, A. J. D., França, G. V. A., Horton, S., Krasevec, J., Murch, S., Sankar, M. J., Walker, N., Rollins, N. C., & Lancet Breastfeeding Series Group. (2016). Breastfeeding in the 21st century: Epidemiology, mechanisms, and lifelong effect. *Lancet (London, England)*, *387*(10017), 475–490. https://doi.org/10.1016/S0140-6736(15)01024-7

Vieira, V. C. A. M. (2013). *Associação entre consistência alimentar e alterações de fala na infância* [Master's thesis, Universidade Federal de Pernambuco]. https://repositorio.ufpe.br/handle/123456789/13402

Vieira, V. C. A. M., Araújo, C. M. T. de, & Jamelli, S. R. (2016). Desenvolvimento da fala e alimentação infantil: Possíveis implicações. *Revista CEFAC*, *18*, 1359–1369. https://doi.org/10.1590/1982-0216201618611516

World Health Organization [WHO]. (2009). *Infant and young child feeding: Model chapter for textbooks for medical students and allied health professionals*. World Health Organization. https://apps.who.int/iris/handle/10665/44117