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Early feeding and nutritional status of Portuguese children in the first 36 months of life: EPACI Portugal 2012–a national representative cross-sectional study

Margarida Nazareth[a,*], Elisabete Pinto[a,b], Milton Severo[c,d], Pedro Graça[c,e], Carla Lopes[c,f], Carla Rêgo[a,g,h]

Abstract

Background: Early feeding practices have a critical role in the future not only in health but also in modulating eating habits. This study aimed to assess breastfeeding and complementary feeding practices and the nutritional status of Portuguese toddlers aged 0–36 months.

Methods: EPACI Portugal 2012 is a cross-sectional study of a national representative sample. Trained interviewers collected data about early feeding practices and anthropometrics. Body mass index was classified according to World Health Organization criteria. Frequencies and survival analysis were used to characterize variables.

Results: More than 90% of children were initiated breastfeeding, around 20% were exclusively breastfed for six months, and about 20% were breastfed at 12 months while complementary feeding was taking place. Exclusive breastfeeding was determined by maternal prepregnancy body mass index (HR 1.01; 95% CI 1.00, 1.03, $P=.03$) and low birth weight (HR 1.61; IC 95% 1.21, 2.15, $P=.001$) of the infants. About 90% were initiated complementary feeding between four and six months, and almost 10% were introduced to cow's milk before 12 months. In the second year of life, 83.2% and 61.6% of toddlers have already consumed nectars and sweet desserts, respectively. About one-third of Portuguese toddlers showed a body mass index z-score >1, and 6.6% were overweight/obese (z-score >2). No association was found between the duration of breastfeeding or timing of complementary feeding and the body mass index z-score in children.

Conclusions: Despite the low prevalence of exclusive breastfeeding at six months, Portuguese infants effectively comply with dietary recommendations during the first year of life. The transition to the family diet must be carefully made. There is a high prevalence of Portuguese toddlers at least at overweight risk. The duration of breastfeeding or timing of complementary feeding was not associated with the expression of overweight/obesity.

Keywords: early feeding patterns, breastfeeding, complementary feeding, nutritional status, Portuguese infants and toddlers

Introduction

Overweight (OW) and obesity (OB) are major public health concerns of the 21st century.[1] World Health Organization (WHO) data suggest that 39 million children younger than five years are OW or obese in 2020.[2] Increasing evidence seems to support an early onset of OB and its tracking for later life.[3] Therefore, studying the early risk factors, particularly feeding practices, is essential.

One of the factors pointed out as protective against childhood OW is breast milk,[4] although not all studies demonstrated this.[5] One of the arguments supporting this role is related to the self-regulation of milk intake in directly breastfed infants.[6] Breast milk has leptin and adiponectin, which are related to self-regulation and appetite.[7] It is consensual that breast milk, when available, is the ideal way of exclusively feeding an infant in the first six months of life.[8,9] Despite this, most developed countries have a low breastfeeding (BF) prevalence,[10] notwithstanding the plans for promoting and supporting BF.[10]

After six months, BF alone is insufficient to meet the infants' nutritional requirements and it is, therefore, recommended to start complementary feeding (CF). CF is often started before six months, for most infants between four and six months, and in this range, it does not seem to make a difference in terms of the risk of OB.[11]

[a] Universidade Católica Portuguesa, CBQF—Centro de Biotecnologia e Química Fina-Laboratório Associado, Escola Superior de Biotecnologia, Porto, Portugal, [b] EPIUnit—Institute of Public Health, University of Porto, Porto, Portugal, [c] EPIUnit/ITR—Laboratory for Integrative and Translational Research in Population Health—Institute of Public Health, University of Porto, Porto, Portugal, [d] ICBAS—School of Medicine and Biomedical Sciences, University of Porto, Porto, Portugal, [e] Faculty of Nutrition and Food Sciences, University of Porto, Porto, Portugal, [f] Department of Public Health and Forensic Sciences and Medical Education, Faculty of Medicine, University of Porto, Porto, Portugal, [g] Child and Adolescent Centre, CUF Hospital Porto, Porto, Portugal, [h] Center for Health Technology and Services Research (CINTESIS), Porto, Portugal

* Corresponding author. Address: Universidade Católica Portuguesa, CBQF—Centro de Biotecnologia e Química Fina—Laboratório Associado, Escola Superior de Biotecnologia, Rua Diogo Botelho 1327, 4169-005 Porto, Portugal. E-mail address: mnazareth@ucp.pt (M. Nazareth).

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The first food to be introduced at the time of CF is also variable,[12] as cultural factors and access to food are of major importance.

This study aimed to assess the timing and characteristics of BF and CF and the nutritional status (NS) of Portuguese toddlers aged 0–36 months.

Methodology

This study was based on EPACI Portugal 2012 (Study of the Childhood Feeding Patterns and Growth), a cross-sectional study that characterized Portuguese infants' and toddlers' feeding patterns and NS.

A nationally representative sample of children aged between 12 and 36 months was recruited, and information about early feeding patterns and growth (since birth) was collected retrospectively. The NS of the children at the time of the interview was assessed.

Sample selection

A sample of 2500 (2000 plus 25% for refusals) was set, to obtain a representative sample of about 1% of Portuguese toddlers aged 12–36 months living in mainland Portugal.

Children were divided according to the Nomenclature of the Territorial Unit for Statistics (NUTS) II, a territorial classification that divides the country into five areas with the same proportions of births per region. Subsequently, 128 health units were randomly selected since an initial criterion was to assess 20 children per unit.

In each health unit, 25 children aged 12–36 months were randomly selected, and their caregivers were contacted and invited to participate. In cases where it was not possible to schedule the appointment with the 25 children of the first selection (due to incorrect numbers, missed calls, and even the impossibility of attending that day or severe disease), other children were selected until a total of 25 scheduled children was obtained. The evaluations took place between May 2012 and July 2013.

The study procedures were explained to the caregivers during the telephone call and the beginning of the interview, and an informed consent was signed. The Portuguese Data Protection Authority, the Ethics Committees of the five Portuguese Health Regional Administrations, and the Ethics Committee of the Catholic University of Portugal Ethics (Ethics Screening Report 02/12) approved this study on February 2012.

Data collection

A protocol was created and previously validated for the collection of data on sociodemographic characteristics [parental age, marital status, number of schooling years and occupation, monthly family wage, number of children (younger than 18 years) in the household], parental NS (mother prepregnancy weight and gestational weigh gain, mother's and father's weight and height at the evaluation), children's gestational age, health history (including diseases, hospital admissions, and health professional responsible for routine health monitoring), early feeding patterns and a food frequency questionnaire about current dietary intake, information about vitamin and mineral supplementation, sleep patterns, and anthropometric data collected from the individual health bulletin. The protocol was applied by trained interviewers and addressed to the children's caregivers, in face-to-face computer-assisted interviews. The interviewers also measured children's anthropometrics on the interview day.

At the end of the interview, a 3-day food diary was delivered to be filled in by the caregivers. The fill-in and subsequent return by postage-paid envelope procedures were explained by the interviewers, who were nutritionists.

The prepregnancy weight and height of the mother were self-reported. When the respondents did not know some answers or did not have the pregnant bulletin in the interview, they were contacted afterward by telephone to collect the missing information. The mother's body mass index (BMI) was obtained by dividing her weight (kg) by the squared height (cm).

Data about total and EBF were collected. We considered total BF as the time (in months) a child was fed breast milk, even if not exclusively. We considered EBF whenever only breast milk was given, not complemented with any other type of milk or food, excluding water or tea.

We also collected data on the consumption of formula: infant formula, follow-on formula, young-child formula, and soya formula, as well as whole and semi-skimmed cow's milk.

Information related to who advised on the CF and its introduction age was collected. We also asked about the first food (vegetable soup, cereal-based foods, or fruit puree) to be introduced at the time of the CF. If the infant had started consuming two foods on the same day, more than one answer could be included. Data on the current food consumption was collected through a food frequency questionnaire that included 15 items. The questionnaire comprised seven categories of intake frequency (from ≥3/day to never). The onset age of each item's consumption was also ascertained.

For this study, we excluded children with any disease which affects the children's development and growth, such as malformation syndrome, severe cardiac, osteoarticular, or chronic disease, and premature (gestational age <37 weeks) or postmature (≥42 weeks) children.

Information about birth weight was divided into three categories: low birth weight when the weight was less than 2500g; normal weight if the newborn's weight was between 2500 g and 3999 g; and macrosomia when the weight was higher than 3999 g.

At the evaluation, the length/height (cm) and weight (kg) of each toddler were measured, and then the BMI was calculated, expressed in z-score (zBMI), and classified according to the WHO criteria. According to NS, toddlers were divided into five categories: underweight (zBMI < -2), normal weight (zBMI ≥ -2 and ≤ 1), OW risk (zBMI > 1 and ≤ 2), OW (zBMI > 2 and ≤ 3), and OB (zBMI > 3).[13] The zBMI above 1 combined the three last categories.

Statistical analysis

For statistical analysis, some variables were recoded. The variable regarding the mother's marital status was recoded into two classes and compared mothers who were married or in a consensual union versus single, separated/divorced, or widowed. Maternal education was recoded into a grade below 12 years of schooling and another including all mothers with 12 years of schooling or more. The number of household children variable was codified into two classes: one child and two or more children.

Prevalence estimates were weighted according to the complex sampling design, considering stratification by NUTS II, a territorial classification that divides the country into five areas, and cluster effect for the selected primary health care

unit. To test independence between categorical variables in complex samples, a crosstab test was performed, and to test for independence between continuous variables, a general linear model was computed. A level of significance of 5% was considered. Statistical analysis was conducted in the *Statistical Package for the Social Sciences* SPSS® version 27 for Windows®.

Weighted data were estimated through survival analysis using the log-rank test. Kaplan-Meier curve was designed to assess the probability of BF throughout time. Cox regression was used to determine the association between factors. This analysis was performed using the R package nlme.

Results

From an initial sample of 2230, 221 children were excluded: 20 by chronic disease, 178 by prematurity, and 25 because the respective gestational age was missing. From these, a total of 2009 (n = 1056; 52.6% male) were eligible to participate: 1002 (49.9%; 51.9 % male) were aged between 12 and 23 months and 1007 (50.1%; 53.5% male) were aged between 24 and 36 months.

Almost all children (94.4%) were started BF, and 76.1%, 61.5%, 46.6%, 19.8 %, and 4.3% were breastfed at 2, 4, 6, 12, and 24 months, respectively (Fig. 1). The prevalence of BF initiation slightly differed between the different five regions, from 89.6% in the North to 91.1%, 93.2%, 93.8%, and 94.3% in Alentejo, Lisbon and Tejo Valley, Algarve, and Center Region, respectively (P=.046).

Almost 60% of the infants were exclusively breastfed for at least four months and one-fifth for six months. Furthermore, 11.3% of the children were never exclusively breastfed. The prevalence of EBF until at least four months of age varied between 49.7%, in Alentejo, and 53.0%, 62.1%, 64.8%, and 68.9% in Lisbon and Tejo Valley, Center Region, North, and Algarve, respectively. The differences between the five NUTS II were statistically significant (P<.001). The prevalence of EBF for six months of age ranged between 17.0%, in Alentejo, and 17.7%, 17.9%, 24.6%, and 24.8%, in Algarve, Lisbon and Tejo Valley, Center Region, and North, respectively. The differences were statistically significant (P=.003).

Those born from mothers with high BMI before pregnancy and those with low birth weight were more likely to stop being EBF (Table 1).

A total of 80.7% of the children were initiated a formula: 54.3% an infant formula, 52.3% a follow-on formula, and 25.4% a young-child formula. Cow's milk was introduced before 12 months by 181 infants (9.0%) [24 infants (1.2%) whole and 157 (7.8%) semi-skimmed]. After 12 months, 16.0% of the children consumed whole cow's milk, 77.3% were fed semi-skimmed cow's milk, 30.9% with growing-up milk, and 2.2% with soya formula.

The pediatrician was responsible for advising on the CF in more than half of the cases (55.1%), and a large proportion of the children (43.2%) were advised by the general practitioner (Table 2). A total of 1810 infants (91.1%) were initiated CF between four and six months of age (Table 2).

The first food used to start CF was vegetable soup for 51.6%, cereal-based food for 45.8%, and fresh fruit for 9.0% of the children. The prevalence of vegetable soup as the first food ranged between 31.2%, in Algarve, and 44.6%, 52.8%, 55.8%, and 71.1% in the North, Lisbon and Tejo Valley, Alentejo, and Center Region, respectively (P<.001). Regarding cereal-based food, it varied between 27.9%, in the Center Region, and 48.1%, 48.2%, 52.7%, and 54.2%, in Lisbon and Tejo Valley, North, Algarve, and Alentejo, respectively (P=.003).

The median age for the introduction of vegetables in soup was five months; six months for cereal-based food, fruit, meat, and yoghurt; eight months for fish; 12 months for vegetables on the plate; 16 months for sweet desserts; and 20 months for nectars (Fig. 2). In the interview, 83.2% of the toddlers had already consumed sweet desserts and more than 60% nectars and non-carbonated soft drinks. About one-third had already consumed carbonated soft drinks (Fig. 2).

Between 12 and 36 months, the prevalence of children at risk of OW (zBMI > 1) was 32.0% and 6.6% were OW/OB (zBMI > 2). No significant differences were observed between 12–23 months and 24–36 months [risk of OW 12–23 months: 34.0%; 24–36

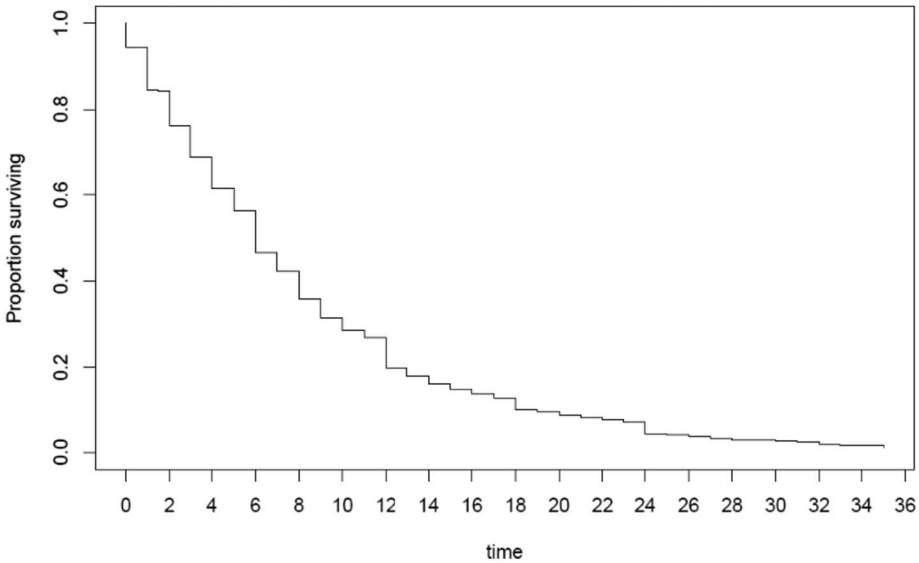

Figure 1. Probability of total breastfeeding in each moment of time (months) (n = 1850).

Table 1

Determinants of exclusive breastfeeding, HR (95%)

	HR (95%)	*P*	HR (95%)	*P*	HR (95%)	*P*
Maternal age	0.99 (0.98, 1.00)	.05	1.00 (0.99, 1.01)	.93	1.00 (0.98, 1.01)	.83
Maternal marital status	1.07 (0.92, 1.26)	.38	1.08 (0.89, 1.32)	.43	1.07 (0.88, 1.31)	.49
Maternal occupational situation	1.07 (0.96, 1.18)	.24	1.11 (0.99, 1.23)	.06	1.10 (0.99, 1.23)	.08
Maternal education/maternal schooling years	0.94 (0.84, 1.04)	.22	0.92 (0.82, 1.04)	.18	0.92 (0.82, 1.03)	.14
BMI before pregnancy	1.01 (1.00, 1.02)	.12	1.01 (1.00, 1.03)	.03	**1.01 (1.00, 1.03)**	**.03**
Paternal age	0.99 (0.98, 1.00)	.02	0.99 (0.98, 1.00)	.06	0.99 (0.98, 1.00)	.12
Number of children in the household	0.91 (0.84, 0.99)	.03	0.93 (0.85, 1.02)	.14	0.94 (0.85, 1.03)	.20
Birth weight						
LBW	1.59 (1.22, 2.07)	<.001			**1.61 (1.21, 2.15)**	**.001**
Macrosomia	0.96 (0.73, 1.26)	.75			1.03 (0.81, 1.31)	.83

BMI, body mass index; HR, hazard ratio; LBW, low birth weight.
Bold entries are related to the results statistically significant.

months: 30.0% ($P = .136$); OW/OB 12–23 months: 6.2%; 24–36 months: 6.9% ($P=.716$); OB 12–23 months: 0.9%; 24–36 months: 0.7% ($P=.662$)]. Considering all the population, the prevalence of zBMI above 1 ranged between 26.7%, in Algarve, and 37.6%, in the North Region ($P=.014$). No association was found between exclusively breastfed children for four months ($P=.820$) or for six months ($P=.311$) and BMI z-score at the time of assessment. Moreover, no association was found between children who were started CF right after EBF and their BMI z-score at the time of assessment ($P=.139$).

An association was found between the first food chosen during CF and the BMI z-score at the time of assessment. While cereal-based food was associated with a lower BMI z-score ($P=.004$), vegetable soup ($P=.017$) and fresh fruit ($P=.011$) were, on the other hand, associated with a higher BMI at the time of assessment.

Discussion

The EPACI study contributed to the knowledge about Portuguese early feeding practices, i.e. in the first three years of life. Our data from a representative sample of Portuguese toddlers showed that 92.1% were started BF, in line with a Portuguese registry that found a prevalence of 98.6%.[14] In a study about BF rates in European countries, the BF initiation prevalence rate oscillated between 56% in Ireland,[10] 67% in France,[15] and 97% in Germany.[10] Nevertheless, overall, BF rates are lower than what we observed.

Table 2

Complementary feeding counseling, n (%), and children's age introduction (months), n (%)

	n (%)
Complementary feeding counseling	
Pediatrician	1107 (55.1)
General practitioner	869 (43.2)
Personal Initiative	122 (6.1)
Familiar	38 (1.9)
Own experience	96 (4.8)
Other	237 (11.8)
Children's age (mo)	
<4	92 (4.6)
4	1002 (50.4)
5	323 (16.3)
6	485 (24.4)
>6	86 (4.3)

In Portugal, almost 60% of infants were exclusively breastfed until four months and only 21.1% until six months. Furthermore, 80.7% of the children consumed any IF at any time, and 9.0% of the infants were introduced to cow's milk before 12 months. Despite the high prevalence rate of BF initiation in some countries, the prevalence of exclusive and full BF gradually decreases over time during the first few months of life,[10] as we also observed in EPACI data. According to WHO data, the European region has the lowest prevalence of exclusively breastfed children during the first six months of life (25%).[16] In Spain, 25.4% of infants were exclusively breastfed until six months,[17] and a lower prevalence rate was found in Switzerland (10.0%), Denmark (13.0%), Sweden (14.0%), and Norway (17.0%).[10] Data from the Portuguese National Food and Physical Activity Survey (IAN-AF) showed that about 22% of the infants were EBF for at least six months.[18] Our data can be explained by the duration of maternity leave in Portugal, which is paid in full only for the first four months. Support policies vary between countries and, in addition to each country's socioeconomic level, may partially explain the different prevalence of any BF and EBF in the world.[10] According to Victora et al.,[19] high-income countries have low BF duration compared with low or middle-income countries, where 37.0% of the children younger than six months were exclusively breastfed. Data from the WHO South-East Asia Region describes a much higher prevalence rate of EBF, presenting a prevalence of 43.0% of infants exclusively breastfed during the first six months of life.[16] Several factors influence the duration of BF, including the mother's level of knowledge, which is positively associated with the BF rate. Gianni et al.[20] found that 70.3% of the mothers reported BF difficulties. The more informed pregnant women are, the better prepared they will be to overcome the challenges that arise during the establishment of BF. According to some authors,[21] older mothers with higher education are more likely to initiate BF since, theoretically, they have more information. Moreover, fathers' support[22] and BF counseling[23] are also critical factors in the success and duration of BF. Being born in a hospital considered baby-friendly also increases BF rates. On the other hand, short maternity leave is often a limitation for maintaining EBF after the mother's return to work. It may also justify the low prevalence rate of EBF for six months found in this study.

Data from the ELOIN study with the Madrid community showed that higher maternal age was associated with longer EBF duration.[17] On the other hand, data from a Chinese study revealed that maternal higher education was associated with long-term EBF.[24] Contrary to these findings, in EPACI data, the only determinants for EBF were maternal BMI before pregnancy

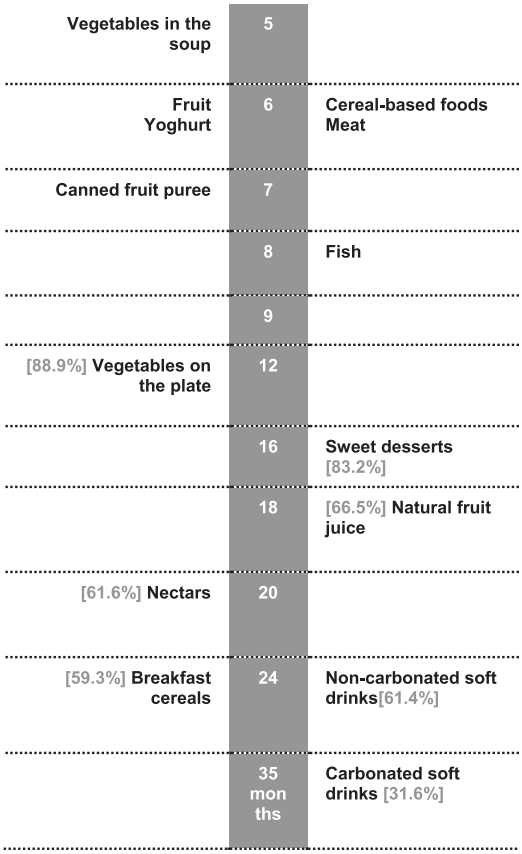

Figure 2. Median age at the time of first consumption/introduction of different foods/food groups. The proportion in light gray expresses the proportion of children who have already been introduced to these foods at the evaluation moment (12–36 months).

and low birth weight. Children born with low birth weight were 61% more likely to stop being exclusively breastfed.

Evidence supports that adequate early feeding practices promote healthy growth and development and protect against disease throughout life.[25] The literature describes that breastfed infants have a lower risk of infection, notably gastroenteritis and respiratory tract infection, and sudden death.[26] For mothers, breastfeeding also has benefits, such as facilitating uterine involution,[27] lowering the risk of breast cancer,[28] and easier postpartum weight loss.[29] Several studies showed the protective effect of breast milk against OB.[4,30] A recent meta-analysis[31] also showed that breastfed children had a lower risk of OB than children who had never been breastfed. However, our results showed no protection from breastfeeding duration or the timing of CF on the expression of OW/OB.

When a child cannot be breastfed, IF can be given to meet the nutritional needs and ensure an adequate growth profile. Our results showed that 80.7% of the children took a formula, which is in line with another Portuguese study[32] that found a prevalence rate of almost 80%.

According to ESPGHAN recommendations,[33] cow's milk should not be introduced before 12 months, yet, according to our data, cow's milk (semi-skimmed and whole milk) was introduced earlier in almost 10% of the children (n = 181), a slightly higher prevalence than IAN-AF refers (6.5%) [18]. This is not the case in all countries, as a North Italy study found that 37.0% of the children were introduced to cow's milk before 12 months.[34]

After six months of age, breast milk alone cannot ensure the infant's nutritional needs,[35] especially concerning energy, protein, iron, zinc, and vitamins A, D, E, and K,[36] so CF should be initiated. This period is an essential stage in the transition to family diet,[36] being a window of opportunity for training on new tastes and textures, during which the intake of a variety of healthy foods, including green vegetables,[33] should be ensured. The literature shows that adequate timing of CF determines future health and food behavior. Recommendations for CF vary greatly between countries, according to their cultural habits. Generally, CF starts earlier in high-income countries. Some studies have shown strong associations between BF duration and the introduction of CF,[33,37] longer BF duration being positively associated with later CF.[38]

EPACI data showed that 91.1% of the infants were introduced to CF between four and six months of age, following ESPGHAN recommendations.[33] In Spain,[39] most infants were also initiated CF in this interval, as well as in Italy.[40] In the French ELFE cohort study[41] and in Poland and Austria,[42] only about two-thirds of the infants were initiated CF in this interval.

However, 4.6% of Portuguese infants were introduced to CF before four months. This prevalence is in line with other countries, such as Poland and Austria, which found a prevalence rate of 2.4% and 4.3%, respectively.[42] Results from the ELFE study showed a prevalence of 26.0%. Previous studies described that early CF could be associated with an increased risk of OB.[43] However, according to the results from an Australian cohort, the duration of BF has more impact.[44]

The first food given to infants also varied between countries: In Sweden, the more common first foods are potatoes, vegetables, fruits/berries, and porridges[45]; fresh fruit in Italy[34]; and cereals along with fruit in Spain.[39] A Polish study found that in 83.0% of infants, vegetables were the first solid food to be introduced at the time of CF.[46] In our study, the prevalence is not so high, but more than half of the children started their CF with vegetables (51.6%) through vegetable soup, an old cultural tradition in Portugal.

The associations found between cereal-based food as the first food with a lower BMI z-score at the time of assessment and vegetable soup as the first food with a higher BMI at the time of assessment may simply be a reflection of the choice made by the health professional who monitors the child, taking into account tracking of the child weight between the time of CF and the time of assessment. Consequently, soup was recommended as the first food for infants with the highest BMI z-score and cereal-based food for infants with the lowest BMI z-score.

Around the first year of life, the child will gradually be able to eat the family diet, which is a balanced, complete, varied, and healthy diet. EPACI data showed that from the first year onward, and when the family diet is integrated, some excesses are registered, notably the consumption of sugar, mainly from sweet beverages and desserts. Data from Generation XXI[32] also found daily consumption of nectars and soft drinks in 52.0% of the children (4 years old) and 65.0% consumed cakes and sweets daily. Our results are in line with other studies conducted in the United States, one of which, with data from the National Health and Nutrition Examination Survey (NHANES) 2009–2012,[47] found that more than 50% of young toddlers (12–23 months) had a daily consumption of sweetened beverages and another posterior study with data from FITS 2016,[48] showing that about 75% of toddlers consumed sweet and sweet beverages. High consumption of sugar-sweetened beverages in early life has been associated with an increased probability of OB in childhood.[49] These results are alarming since, according to the recommendations of ESPGHAN,[50] the consumption of free sugars present in these foods should not exceed 5% of the total energy requirements, and EFSA has warned that high consumption of sugar increases the risk of caries,[51] steatosis,[52] diabetes, and OB.[53]

It is essential to take advantage of this transition to a family diet to review the family's nutrition choices to maintain them in accordance with healthy behavior. The recommendations from the first year of life should be reinforced and detailed to parents by health professionals. At this stage, parents are still very permeable and receptive, and it will be easier to obtain a good collaboration. It is also important to establish specific recommendations because young children have a high appetence for energy-dense foods rather than healthy foods,[50] so healthy foods should be made available daily.

Few studies assessed the prevalence of OW/OB in toddlers, and it is difficult to compare the prevalence as different classification criteria, age cutoff points, and data collection methods were used. The use of BMI or weight-for-length to assess NS in such young children is one of the main factors. In a study by Biro et al.,[54] a prevalence of 18.0% of OW risk and 6.7% of OW and OB in children from birth to 2 years was found, using the weight-for-length z-score. A systematic review of European preschool children (2–7 years), including data from 27 countries, found a lower prevalence (17.9% of OW and 5.3% of OB). However, these data were based on IOTF criteria, and the study group was older than the EPACI population. In EPACI, we used BMI as the criteria, and we found an OW-risk prevalence (BMI > 1) of 25.4% and 6.6% of OW (BMI > 2) and OB (BMI > 3), totalizing to 32.0%.

Knowing that early OB increases the risk of being obese in adolescence and adulthood, it is essential to evaluate and identify children as early as possible.

Our study is based on a large nationally representative sample, which is one of the strengths of this work. Another strength is the structured protocol for data collection and the fact that data was gathered in face-to-face interviews, by trained interviewers, following standardized procedures. It was also possible to collect by telephone the information that, in some cases, was not available in the interview. The EPACI study was also the first one that characterized Portuguese toddlers' feeding habits, bringing new insights for health professionals in establishing guidelines for this age group and in the future implementation of training programmes for educators, parents, and parents-to-be.

This work had, however, some limitations. The data about feeding practices during the first year of life were retrospectively collected, implying recall bias of the caregiver, as much of the information requested was not in the child's health bulletin.

In conclusion, despite the high rate of BF initiation, the prevalence of BF diminishes over time and less than a quarter of the Portuguese infants met the WHO recommendations of being exclusively breastfed for six months. Maternal high BMI before pregnancy and low birth weight were the only predictors of EBF unsuccess. CF was initiated mostly between 4 and 6 months, and during the first year of life, early feeding practices followed the ESPGHAN recommendations. However, the consumption of sugary foods and beverages starts very early, shortly after 12 months. The prevalence of OW/OB in about one-third of Portuguese toddlers is alarming, considering the high tracking pattern of OB. The duration of breastfeeding or the timing of CF did not show protection on the expression of OW/OB.

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