

Nutri-bébé 2013 Study Part 3. Nutri-Bébé Survey 2013: 3/Behaviour of mothers and young children during feeding

Enquête Nutri-Bébé 2013
Partie 3. Comportement des mères et des jeunes enfants
lors de l'alimentation

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Summary

This new study by the Secteur français des aliments de l'enfance (SFAE) (French Agency for Children's Foods) confirms the improvement in the nutritional environment of young children, particularly in sharing family meals. Incorporating the sample of breastfed children is a new feature, although food refusal behavior in infants did not appear to differ greatly whether or not they were being breastfed, and mothers expressed a need to be informed and guided in order for their children to better accept varied foods. We still found long-term continuation of feeding bottles and in parallel excessively early introduction of adult foods and significant and inappropriate viewing of screens for age.

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Résumé

Cette nouvelle étude du Secteur français des aliments de l'enfance (SFAE) confirme l'amélioration de l'environnement alimentaire des jeunes enfants, avec en particulier le partage des repas en famille. L'intégration dans l'échantillon d'enfants allaités au sein est une nouveauté, mais les comportements de refus des aliments nouveaux n'ont pas paru très différents qu'il y ait eu allaitement au sein ou non, et les mères ont exprimé le besoin d'être informées et guidées pour une meilleure acceptation de la diversité par les enfants. On a encore constaté un maintien prolongé des biberons avec en miroir une introduction trop précoce d'aliments de type « adulte » et une utilisation des écrans importante et inadaptée à l'âge.

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1. Introduction

The French Agency for Children’s Foods (SFAE) had conducted a national survey on feeding behavior and food consumption in children under 3 years of age every 8 years since 1981. The first study in 1981 investigated 649 children between 0 and 24 months of age. In 1989, the study was conducted again in 499 children between 0 and 18 months of age and the study in 1997 involved 660 children, adding an age 25- to 30-month age band. Children who were being breastfed or looked after in the community at the time of the survey were excluded. In 2005 the study examined 713 children (60 per age band) and included children between 30 and 36 months of age [1]. Acquiring appropriate eating behavior and a suitable food repertoire is the result of learning during the first years of life and a climate of good early interactions between mother and child. For this reason it was important to examine the environmental feeding context of the young child and the mothers’ experience in their role as the “nourishing mother,” the purpose of this article. The results presented were obtained from the “Feeding behavior” arm of this survey about the environmental context of meals eaten by the child, change in feeding methods, and more general information such as physical activities or watching television.

2. Methods

The study conducted in 2013 involved 1,188 children divided into age bands of 80 children and included those who were being breastfed. The method is described in the article by G. Tavoularis [2].

To determine the feeding context, the mothers were asked about the frequency with which their child ate at the same time as its parents (or at the same time as other children in the household). The results are presented in three categories:

- children who “never” ate with their parents (or with other children in the household);
- children who ate “occasionally” with their parents (“once or twice per week” and “less often”);
- children who ate “regularly” with their parents (“daily or almost daily” and “three or four times per week”).

The child’s food was the same as or different from theirs (or the same as other children in the household).

For each meal the mothers were also asked about the type of feeding but, as a new feature compared to 2005, because breastfed children were included, the questions were asked differently: mothers were given a list of methods of feeding: at the breast, with a bottle, by spoon, cup or bowl, and others (hand or fingers). In addition, rather than asking the mothers about cooking in general they were asked about cooking for their baby.

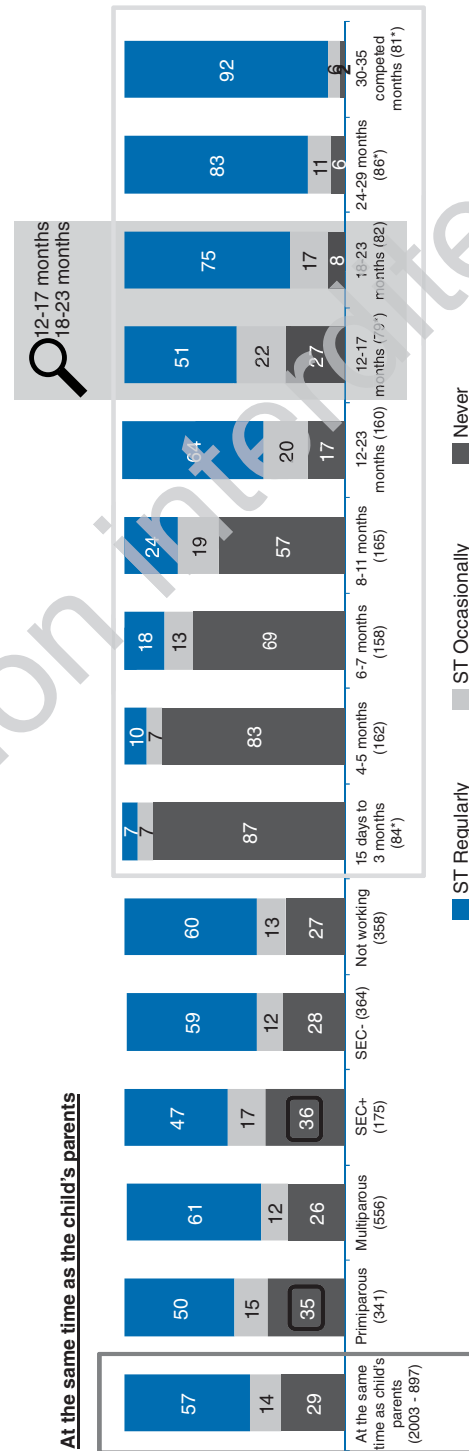


Figure 1. Contexts and times of feeding the baby (from 15 days to 35 months of age), meals eaten at the same time as the child's parents.

A question was included for mothers of children over 12 months of age who had started walking about the child's mode of locomotion: the child was transported (carried, in a baby carrier, in a stroller), or the child getting about on foot (alone, someone holding its hand, holding onto the stroller). For television, the question asked in 2013 was broader than 2005: "How many days per week does your child watch/use a screen (television, computer, console, tablet, mobile phone with screens, Smartphone)?"

3. Results

3.1. Feeding context

In the overall sample (Fig. 1), 29% of children never ate with their family, whereas in 2005 one out of two children (53%) "never" ate with both parents or with the other children in the household. At 4–5 months of age, 83% of infants never ate with their parents compared to 69% at 6–7 months. A transition period began between 8 and 12 months of age when 57% of 8- to 11-month-olds "never" ate with their parents, although by 12–23 months of age only 17% fell in this category, whereas 64% "regularly" ate their meals with their parents).

3.2. Feeding content

Until 6–7 months of age, 95% of infants "never" ate the same thing as their parents compared to 74% at 8–11 months of age, when 18% did so "occasionally" and 8% "regularly." The figures between the ages of 12 and 17 months of age were 27% of children who never ate the same thing as their parents, 48% who did so "regularly," and 24% "occasionally." Sixty-two percent of 18- to 23-month old children, 82% of 24- to 29-month-olds, and 93% of 30- to 35-month-olds "regularly" ate the same things as their parents.

Primiparous women and mothers from wealthier households were less inclined to have their baby eat at the same time as they did. Wealthier mothers tended less to give their child the same dishes as the rest of the family.

3.3. Feeding methods

Moving to a spoon or cup varied greatly depending on the meals. At breakfast in the 1st year, the majority of mothers only fed by breast or bottle. Up to 4 months of age, 47% fed at the breast and 59% with a bottle. Beginning at 12–17 months of age, 10% used a spoon. Bottles were greatly preferred at all ages, 81% still having a bottle at 24–29 months of age and 67% at 30–36 months of age. Spoons started to be used at lunch at around 4–5 months at the time of dietary diversification (40%) and became generalized (94%) at 6–7 months,

for mixed use and then almost exclusively from 8–11 months of age (98%). Bottles disappeared from lunch at 23–29 months of age. At the afternoon feed, after the first 3 months, which were split between breast (44%) and bottle (60%), spoons started to be used in 31% at 4–5 months of age. By the age of 6–7 months, 73% had experience using a spoon compared to 86% at 8–11 months. Spoons were used slightly less after 12 months of age (70% at 12–23 months of age) as were bottles (37% at 12–23 months of age). Breastfeeding only completely disappeared beginning at 24 months when bottles were used in only 17% of cases. Other feeding methods were split between spoons (74%) and cups or bowls (24%) or others (21%). We noted that 14% were still using a bottle at 30–35 months of age. At dinnertime, the shift to a spoon was later: 31% used a spoon at 6–7 months of age and 67% at 8–11 months. Bottles were used by most (78%) up to 6–7 months of age. The majority of children from 12–23 months of age onwards used a spoon (90%), although bottle use continued for a very long time: 33% at 12–23 months, 17% at 24–29 months, and still 12% at 30–35 months. The preferred times of dietary diversification, therefore, were lunch and the afternoon feed and that the bottles continued to be used for a long time at breakfast and dinner.

3.4. Refusal of certain foods

From the time of dietary diversification children refused certain foods. Overall this involved 54% of children (14% routinely and 40% occasionally). Nineteen percent refused some foods at 4–5 months of age, although this figure increased with age to 43% at 6–7 months, 59% at 12–23 months, 69% at 24–29 months, and 76% at 30–35 months. Food refusal was more occasional than routine, although at 30–36 months of age, only 24% of children never refused foods. There were no differences whether the mothers were primiparous or multiparous or between socioeconomic groups (Fig. 2). This question had not been asked in a previous 2005 survey. The main foods refused were vegetables (54%) followed by meat, fish, and eggs (MFE) (29%) and fruits (20%). The very great majority of the youngest children (6–7 months old) who were refusing foods refused vegetables (74%), whereas those who refused foods at 12–23 months of age also refused vegetables but to a lesser extent (46%). These figures, however, were difficult to interpret because the different foods were not all introduced at the same time. When the children refused foods, 48% of mothers encouraged their child to try the food and 5% forced their child to eat. Forty-seven percent of mothers did not persevere: 17% offered something else, and 30% offered the foods again on another occasion. The only significant difference between families was that more younger mothers (under 25 years of age) forced their child (16%, versus 3–4% of older mothers) (Fig. 2). No difference was found between breastfeeding mothers or mothers who had breastfed and those who did not breastfeed (Fig.

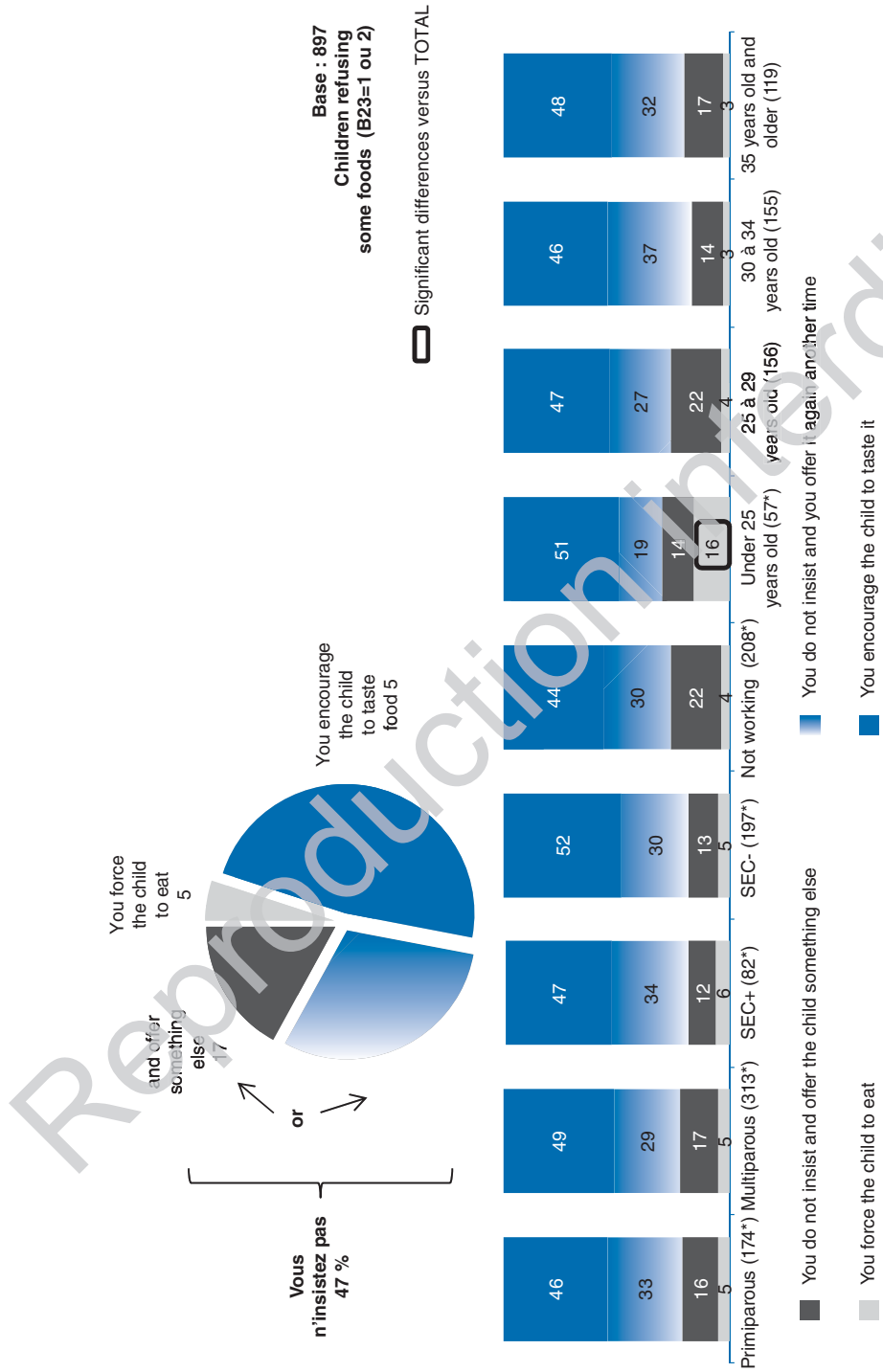


Figure 2. Parent reaction to refusal

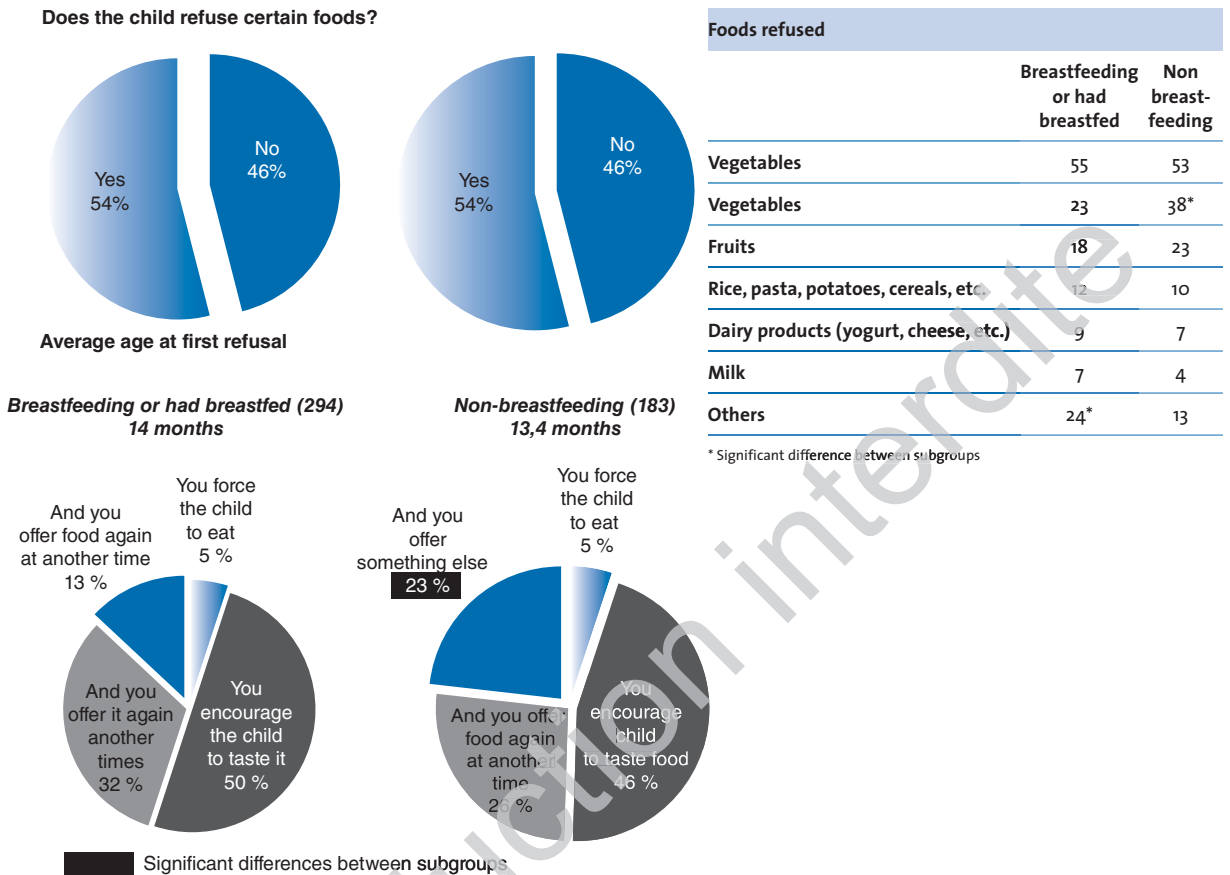


Figure 3. Foods refused and parent's behavior.

3). The average age of the first food refusal was 14 months versus 13.4 months, respectively, and 54% refused certain foods in both groups. The most common foods refused were vegetables (55% versus 53%, respectively), although significantly more children refused MFE (38%) in the group of non-breastfeeding mothers (versus 23% in the group of mothers who were breastfeeding or had breastfed). On the other hand, non-breastfeeding women were more inclined to offer something else (23% versus 13%).

3.5. Mothers' attitudes to cooking

While fewer mothers than in 2005 said that cooking was a chore (6%), 52% replied that it was a pleasant time and 40% that it was routine, whether or not the women had breastfed their child. A change was seen over time: the activity was pleasant for 62% of

mothers of 4- to 5-month-old children and a routine activity for 51% of mothers of 30- to 35-month-old children. Very little difference was observed depending on the household's socioeconomic status except for 30- to 34-year-old mothers, significantly more of whom felt that it was a routine activity (47% versus 33-38% of mothers in other age bands).

3.6. Physical activities

At 12-17 months of age, 61% of children were transported by some means, whereas at 18-23 months of age, 70% got about on foot. At 30-35 months of age, 90% were walking, although 10% were still being transported by some means. The findings were not significantly different between primiparous and multiparous mothers or socioeconomic groups (Fig. 4).

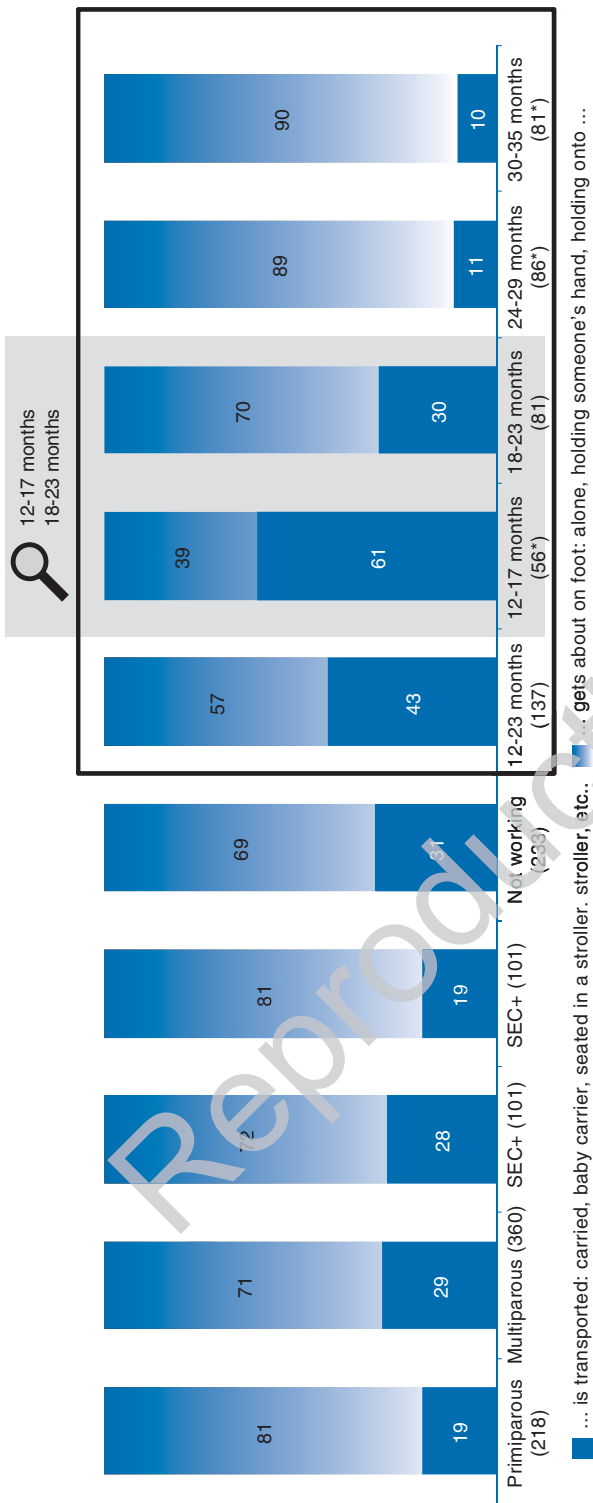


Figure 4. Methods of transporting children over 12 months old.

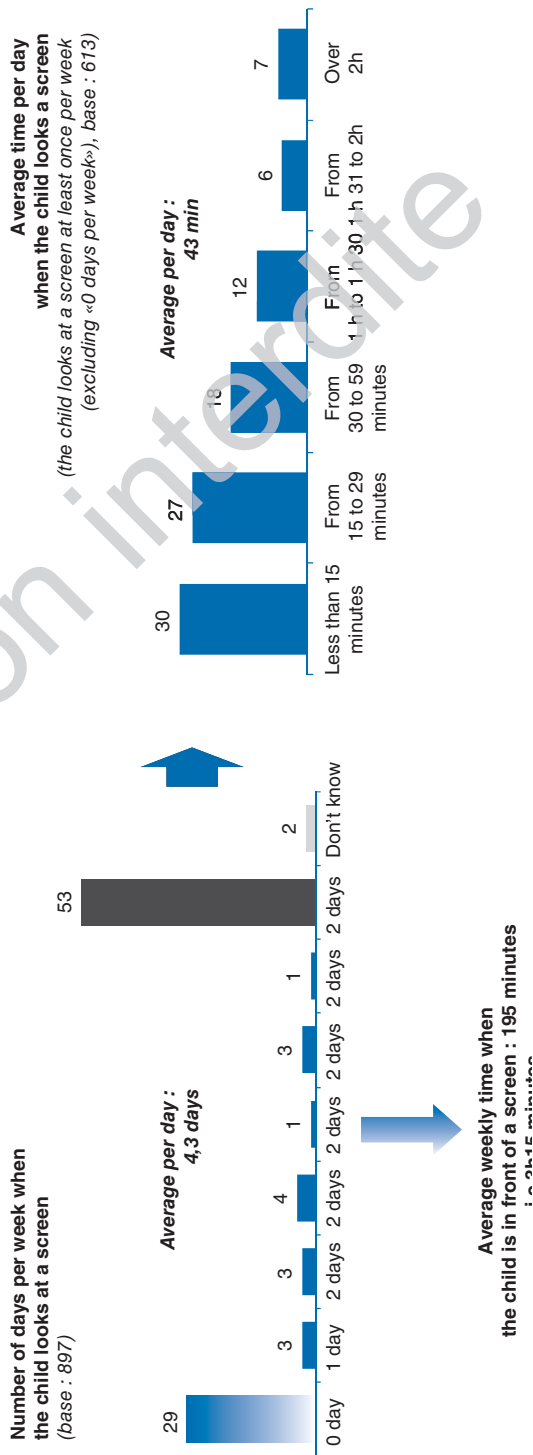


Figure 5. Watching a screen (television, computer, console, tablets, portable phone with screens, Smartphone, etc.).

3.7. Television

Eleven percent of the youngest children (from 15 days to 3 months of age) already spent time in front of a screen daily. The corresponding figures were 54% at 12–23 months of age, rising to 75% at 30–35 months of age (Fig. 5). The average time spent per day was 30 minutes at up to 12 months of age, 50 minutes at 24–29 months, and almost an hour at 30–35 months. Twenty-nine percent of children ate while watching television or with a distraction (15% under 4 months of age and 33% at 12–23 months of age, rising to 37% at 24–29 months). This phenomenon was less common (only 12%) in the wealthiest households.

3.8. Independence

Beginning at 12–17 months of age, 61% of babies drank on their own. Eight percent were already drinking on their own at 6 months and 23% at 8–11 months of age. The first meal eaten alone was at 15 months regardless of the household socioeconomic status. Independence became truly established at 18–23 months of age, when 89% drank alone and 58% ate alone. By 23–29 months of age, 74% ate alone compared to 83% at 30–35 months of age.

3.9. Introduction of adult foods

Adult foods were introduced occasionally or regularly, mostly when the child had reached his or her first birthday.

3.9.1. Fried potatoes

Fifty-five percent of children between 0 and 35 months old who were eating a solid diet regularly or occasionally consumed fried potatoes (French fries, fried potatoes, potato croquettes etc.). This consumption began at the age of 8–11 months occasionally but involved half of children who were 12–17 months old. At 23–29 months of age, three-quarters of children ate cooked and fried potatoes. Among the 30- to 35-month-olds, only 17% of children never ate these foods.

3.9.2. Sauces

Sauces (ketchup and mayonnaise) were consumed by 35% of 0- to 35-month-old children and they were offered beginning at 12 months of age: 10% consumed them at 12–17 months of age, 38% at 18–23 months, 64% at 24–29 months, and 70% at 30–35 months of age.

3.9.3. Processed meat

Processed meats other than ham were consumed by 50% of children, beginning at 8–11 months by 10% of babies and by 47% of children from 12–23 months of age. Seventy-three percent of children ate these foods by the time they were 23–29 months old.

3.9.4. Ready cooked meals

Ready cooked meals such as pizzas, lasagna, ravioli (fresh, frozen, or preserved products) were eaten by 39% of children. Consumption began with 26% at 12–17 months of age but increased to 51% at 18–23 months and to 61% at 23–29 months.

3.9.5. Drinks

There was a clear introduction of consumption of fruit juices at 12–17 months of age (51%) and by 18–23 months 27% were drinking fizzy drinks and 42% were drinking non-milk flavored syrups or drinks. By 24–29 months, 91% were drinking commercial fruit juices, 41% were drinking fizzy drinks, and 58% were drinking flavored syrups or drinks.

3.9.6. Candy

Candy (candy, bars, chocolate blocks, etc.) were consumed by 51% of children. This began to a small extent (7%) at 8–11 months of age but increased rapidly to 46% at 12–23 months of age, 78% at 24–29 months of age, and 87% at 30–35 months.

3.9.7. Spreads

Chocolate spreads were consumed by 38% of children. Few ate these before the age of 1 year (4% of 8- to 11-month-olds), although 38% of 12- to 23-month-olds, 57% of 24- to 29-month-olds, and 65% of 30- to 35-month-olds ate these spreads.

4. Discussion

This study is a survey on a population of children living in mainland France which has been repeated every 8 years since 1981. Methodological aspects have been changed, although it is important to emphasize that beyond the nutritional aspects, the emphasis has also been placed on behavioral and relationship aspects. Because of the difference in questions and inclusion of breastfeeding women, it has sometimes been difficult to compare the change in feeding behavior with previous surveys. It is certainly during the age period from 15 days to 35 months when the child can learn good eating behavior both to provide adequate intake for correct growth and to avoid pathological development towards obesity or eating behavior disorders. At this age, however, the child is not in control of its intake but is completely dependent on meals offered by the family in quality, amount, and frequency. A child's main activity at the beginning of life is feeding, immediately followed by sleeping, and the child has a great deal to learn: the transition between continuous feeding in the whom to discontinuous feeding with feelings of hunger and satiety. The child then needs to accept weaning, being distanced from the breast, and experiencing introduction of foods other than milk (diversification). To successfully pass through all of these

stages, the child must feel secure and reassured by the presence of the family. The mother is the child's primary caregiver and many things are played out between the mother and child during feeding exchanges. The mother also needs to be supported and guided. When children's habits are compared between 2005 and 2013, regular incorporation of the children into mealtime with their parents is advancing: 43% in 2005 and 57% in 2013. On the other hand, children in the 2005 survey less often ate "the same thing" as their parents (33% versus 52% in 2013) [1]. Comparing the 2005 sample [1] to the "non-breastfeeding" 2013 group (Fig. 6), methods are similar: 85% versus 89% have a bottle for breakfast, 87% versus 86% are spoon-fed for lunch, 65% versus 68% are spoon-fed for the afternoon feed, and 72% versus 73% are spoon-fed at dinner. In terms of behavior, positive changes have been seen within families such as the child being incorporated into the family meals: beginning at 12–13 months of age children eat their meals with their parents increasingly often and by 30–35 months of age almost all regularly eat meals as a family. Meals are a time of exchange, sociability, and communication. The parents are models for the child and eating meals together enables the child to become familiar with

new foods. Children will experience less fear of experimenting with new foods and their unknown flavors, colors, and textures if they see their parents eating them. This family learning is fundamental to introduce vegetables and fruits provided that the parents eat them themselves [3-7]. The negative component is that the children eat very quickly, like their parents; from 1 year of age it appears that mealtimes for half of the children are the same as for their parents, this proportion increasing with age. Family financial hardship probably contributes to this. In fact, in 2005 children ate the same thing as their parents less often and wealthier families gave less of the same thing to their child as to adults [1]. Early introduction of adult foods (French fries, pizzas, etc.) may also be supported by the financial aspect in that sharing the family meal is less expensive and more accessible than buying specific foods. Nevertheless, this cannot be the factor that explains early introduction of sauces, processed meats, candy, and fizzy drinks. Excessively early introduction of French fries and fizzy drinks was also found in the American FITS study (Feeding Infants and Toddlers study) [8]. Sitting the baby down at the table means considering the child a separate person and as a person the child is entitled to have the

Base : moments où le bébé est nourrit par la mère

A10. Type of feeding by time of the day (Item selected in A9)	At breakfast		At lunch (midday)		In the afternoon (afternoon feed)		At dinner (in the evening)	
	2013 Non breastfeeding	2005 Non breastfeeding	2013 Non breastfeeding	2005 Non breastfeeding	2013 Non breastfeeding	2005 Non breastfeeding	2013 Non breastfeeding	2005 Non breastfeeding
Base	900	713	800	713	794	713	930	713
With bottle	89	85	22	21	43	44	42	45
With spoon	12	9	86	87	68	65	73	72
With cup or bowl	12	12	13	-	12	7	11	-
Other & descriptions	3	3	6	2	15	14	6	*

2005 List	
Lunch/Dinner	-Bottle -Only with spoon -With bottle and spoon -Other
Breakfast/ Afternoon feed	-With spoon -With bottle -With cup or bowl -Other

«Other» By hand, with fingers
→ these are bread, melba toasts, cookies, fruits etc.
NB : → no 2005 data for other meals
Significant differences

Figure 6. Types of feeding of young children in 2005 and 2013

same foods and to enjoy itself (sweets and sweet drinks). However, a certain ambivalence is seen in some families, with the child sharing meals and eating adult foods. At 12–17 months of age, 61% were drinking alone and in some families, 8% were already drinking alone at the age of 6–7 months and 23% at 8–11 months, and the child had to learn very young to eat alone. However, a prolongation of bottle feeding was observed. The French National Health-Nutrition Program (PNNS) does indeed encourage daily intake of sufficient amounts of milk, although bottles were still being used at breakfast for the majority of children (67%) at 30–35 months of age, when they are expected to begin school. Bottles were also maintained afternoon feeds and the evening meal for a long time [9].

Prolonging the use of bottles maintains the child in an infantile position and can be compared with the use of transport mechanisms (strollers, baby carriers), as if the mothers were encouraging their child to remain a baby “to keep the child close to her.” Nevertheless, strollers are given up earlier than in 2005 [1], although 10% of children were still “transported” at 30–35 months of age.

The attitude to preparing meals is not really comparable with previous versions of the study because the question in 2013 involved cooking for children and not cooking in general. In 2005, 11% of mothers reported that cooking was a “chore for them,” 39% that it was a “routine” activity, and 49% that it was a “pleasant moment.” These proportions were similar in all aspects to those found in the three previous versions of the study [1]. Half of the mothers experienced pleasure in preparing meals for the child and 40% described the activity as routine. It is important to suggest to mothers that they involve their child in preparing meals, both to allow the child to know the foods and to experience cooking as a time of shared pleasure [10].

The study of the child’s refusal of certain foods and the mother’s attitude to these refusals is a new feature in this survey. The increase in the proportion of foods refused as the child ages confirms what was already known: the more the child ages the greater the risk is that the child will refuse food partly because of the developmental aspect of food neophobia, although there was also a broadening of tastes, textures, and compositions of the foods offered. Nevertheless, and unsurprisingly, the child’s attitudes varied. As has been very well described by Caton et al. [11], children do not all have the same personality traits with regards to eating: for vegetables, for example, some learn and increase their ingestion gradually over time, whereas others accept everything very quickly, and finally others reject them for a long period of time. The child’s temperament needs to be taken into account as well as the mother’s attitude, which remains an essential factor. It is known that in order to be accepted some foods need to be presented to the child more than eight times. However, in this

study, when the child refused, almost half of the mothers did not insist, 17% offered something else, and only 30% offered it on another occasion. Questions can be raised on the lack of difference in food refusal between children who were breastfed and those who had not been given that it is often reported that children who are breastfed accept new foods more easily [12–14].

In 2005, 79% of over-1-year-olds watched television, 43% for less than 1 hour a day (21% for less than 30 minutes and 22% between 30 minutes and 1 hour); 44% watched it for 1–2 hours daily (32% from 1 to 1 hour 30 min; 12% from 1 hour 30 min to 2 hours, and 10% for over 2 hours) [1]. Whereas the guidelines from the pediatric learned societies do not recommend watching television before the age of 2 years, children were exposed to both television and other screens from a young age (even under 3 months), and half of them were exposed daily at 12–23 months, with three-quarters being exposed at 30–35 months of age.

These figures are consistent with international findings although the time spent watching television appears to be shorter: a mean 1 hour compared to a mean of 2 hours in North American studies. In the literature review published by Duch [15] on 29 studies, the time children under 3 years of age spent looking at screens was correlated with BMI, depression or maternal dysphoria, the time spent by the mother watching television, and with less good cognitive stimulation. The issue of presenting a distraction during meals was a new question revealing that one-third of patients were distracted during meals, whereas experts unequivocally advise against meal-time distractions. As shown by Fitzpatrick [16], watching television during meals obviates the function of a family meal. All distractions are discouraged so that the child can concentrate on its meal, experience its hunger and satiety, discover tastes and textures, and not eat passively while doing something else.

The study of physical activity examined through the use of a stroller for walks showed that this use is often extended up to 19–24 months of age in 50% of children [17].

5. Conclusion

The behavior of mothers of infants and young children in France continues to improve as shown by their taking meals together as a family, encouraging the child to walk in order to move about, and the interest in cooking. Supporting actions are still required to delay switching too quickly to an older person’s diet and to reduce early and excessive use of screens. Specific support on handling a child’s food refusal would be desirable so that mothers can take the child’s temperament into account and agree to offer the recommended foods again with a positive and edifying approach [18].

Conflicts of interest

The authors declare that they have no conflicts of interest with this article.

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