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Factors that influence parents' provision of home prepared and commercial foods for infants and young children: A longitudinal analysis focused on disparities in socio-economic position

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Overview of recommendations

1. The study found that mothers typically carry the full burden on infant feeding with most fathers providing little support and at times undermining healthy practices. **To increase fathers' involvement in infant care, the UK could learn from countries which have more flexible parental leave systems, while also taking measures such as social marketing, portrayal of role models, and provision of tailored meal preparation guidance and training to create a social norm for greater involvement and support for healthy feeding by fathers.**
2. The study suggests that mothers are influenced by labelling claims and packaging of products in supermarket baby aisles leading them to believe that products are healthier than they are. **The UK could work towards ensuring national legislation adheres to international best practice to ensure that front of pack product claims and labels accurately reflect the health benefits and age-appropriateness of the products**.
3. Mothers across socio-economic positions (SEPs) identified a need for clear and reliable information, from a trusted source, on all aspects of infant feeding. They criticized both the NHS Start 4 Life website and health visitors as providing inadequate information and turned to commercial sources instead; the latter was in part due to a lack of in-person health visitor appointments since COVID-19. **The UK could learn from global examples to provide a reliable, trusted source of information and, given their perceived benefits, consider re-introducing in-person health visitor appointments.**
4. Time pressures emerged from the study as being a core influence on both parent's ability to practice healthy infant feeding. Options to consider **include increasing eligibility of the governments tax-free childcare programme to ensure all parents have equal access to children's nurseries**.
5. Many mothers in the study relied on childcare providers to offer nutritious meals to their children. There is the potential to **support nurseries in delivering interventions that promote healthy eating**, **through staff nutrition training, parental involvement in meal planning, identifying and responding to hunger and satiety cues and introduction of national healthy eating guidelines**.

Executive summary

Eating habits developed during childhood often persist into adulthood. Mothers play a central role in determining what and how food is provided during these early years, with feeding choices (e.g., formula versus breastmilk), timing (e.g., early introduction of solid foods) and involvements of fathers, all known to influence infant and child health. However, very little is known about the underlying influences that drive these factors and no studies to date have focused exclusively on the factors that drive parents towards provision of home prepared and commercial foods.

The specific aim of this research is to identify the factors that drive parents towards provision of home cooked and commercial foods over the first 18 months of parenting, with an emphasis on understanding differences between socio-economic position.

This research utilised a longitudinal qualitative methodology, allowing the facilitators and challenges experienced by parents (primarily mothers) in deciding what food and drink provisions to make for their children to be explored.

Mothers have a desire to do what is best for their child in terms of providing healthy and nutritious meals over the first 18 months of parenting, with mechanisms such as parental leave and access to nursery providing mothers (particularly among high SEPs) opportunities to purchase and provide home prepared meals. However, factors such as lack of time (particularly after returning to work), convenience, insufficient support from most fathers, enjoyment in seeing how infants respond to new foods, uncertainty around infant feeding practices and an implicit trust in branded products all direct mothers, particularly among low SEPs, towards commercial foods.

There are immediate and actionable steps that policy makers and healthcare providers can take to orient parents towards healthier eating practices, such as making changes to the eligibility criteria for accessing shared parental leave and aligning with international best practice on food products aimed at infants and young children.

Background

Infant feeding practices impact long-term health, with eating habits developed during childhood often persisting into adulthood (1,2). Globally, obesity in childhood and adolescence has reached epidemic proportions (3). Between, 2007 – 2020 around 10% of UK reception children (4 – 5-year-olds) were classified as obese, rising to 15% in 2021. Rates of obesity increase to around 20% by the time children are 10 – 11 years old (4). Children consume a greater proportion of their calories from fat, and eat fewer fruits and vegetables than previous generations, a dietary pattern linked with development of cardiovascular disease, cancer, osteoarthritis, chronic kidney disease and other health and psychological disorders (5).

Parents, particularly mothers, play a central role in determining what and how food is provided during these early years, with feeding choices (e.g., formula versus breastmilk), timing (e.g., early introduction of solid foods) and involvements of fathers, all known to influence infant and child diets (6,7). Indeed, most research to date has focused on the relationship between these infant feeding practices (e.g., formula versus breastmilk; timing of solid foods) and infant health (6,7). However, very little is known about the underlying factors that drive these dietary decisions. In particular, no studies to date have focused exclusively on exploring the factors that drive parents towards provision of home prepared and commercial foods. This is despite the transitional infant feeding period being recognised as a key time period when dietary behaviour and food preferences are developed (6,8).

Consequently, the purpose of this study is to examine, over the first 18 months of parenting, the diverse social and behavioural factors that influence infant feeding practices, with an emphasis on understanding differences between SEP.

Aims and objectives

Aim

The specific aim of this research is to identify the factors that drive parents of different SEP towards provision of home cooked and commercial foods over the first 18 months of parenting.

Objectives

- Identify the specific factors that influence provision of home prepared meals, commercial foods and snacks
- Identify how factors that shape infant feeding practices vary by socio-economic position
- Develop specific recommendations for DHSC that are supportive of healthier infant feeding practices

This research utilised a longitudinal qualitative methodology. This allowed for analysis over a period of transitions, as well as at specific points in time, and provides a unique opportunity to understand the facilitators and challenges experienced by parents in deciding what food and drink provisions to make for their children during the first 18 months of life.

Methods

Participant recruitment

Participants were defined as any parent or caregiver in England with an infant aged 4 – 6 months at time of recruitment. The primary method of recruitment was via social media platforms. Researchers contacted potential participants until approximately 20 were recruited from low, medium and high SEPs (N = 62). Initial contact (via phone or video-conferencing) involved providing further study information, and the participant information sheet.

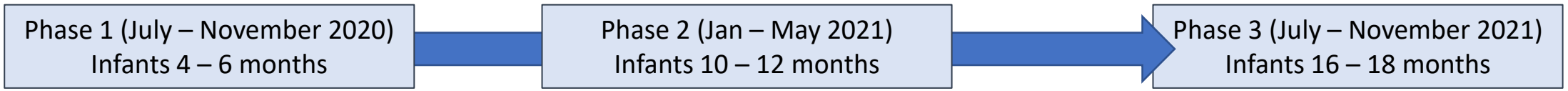
Data collection

Interview 1

All participants undertook an initial semi-structured interview when infants were 4 – 6 months. The interview elicited information on experiences and perspectives of infant feeding: why participants chose the foods and feeding methods they did, and what personal, social, cultural, and economic factors shaped these decisions. Following the interview, participants were asked to spend one week taking photographs of factors that influenced infant feeding decisions. In a second discussion, participants went through each photograph, describing what it represented and why they took it.

Interviews 2 and 3

This was followed by interviews when infants were 10 – 12 months and 16 – 18 months. Participants were asked to spend the week before interviews photographing factors that influence feeding practices. Interviews followed the same framework as outlined for the first interview.



Methods

Data analysis

Interview transcripts from the semi-structured interviews and photo-elicitation interviews were uploaded into the qualitative research software NVIVO 12. Analysis involved a process of reflexive thematic analysis, running from familiarisation with the data to development of themes. Given the large amount of data, it was necessary to develop a loose coding framework. This allowed for the inclusion of new codes as the coding process progressed. Following the first phase of interviews, transcripts were read and open-coded. The research team then discussed these open codes and developed a coding framework. Codes were consolidated and grouped together to create a systematic framework, consisting of four themes and 12 sub-themes. The 12 sub-themes (referred to as factors from this point onward) were specific factors, identified by parents, that influenced the decision to provide home cooked or commercial foods.
The same systematic framework was used for interviews 2 and 3 and the longitudinal analysis. The longitudinal analysis focused on how the 12 factors changed over time by organising data into matrices, with one matrix per unit of analysis. Specifically, factors were grouped on the Y-axis and time (interviews 1, 2 and 3) on the X-axis, providing one column per unit of analysis. The longitudinal analysis focused on how these factors changed or did not change over time, as well as exploring variation by socio-economic position, with reference back to field diaries, participant sheets and interview transcripts when specific examples were needed.

Ethics

Prior ethical approval was sought and obtained from the research ethics committee at City, University of London. Informed consent was obtained from all participants.

Participant characteristics

Table 1: Participant characteristics

Participant information	Interview 1 Number (%)	Interview 2 Number (%)	Interview 3 Number (%)
Number of participants	62 (100)	58 (93.5)	47 (75.8)
Socioeconomic position			
Low	18 (29.0)	16 (27.6)	13 (27.7)
Medium	22 (35.5)	20 (34.5)	17 (36.2)
High	22 (35.5)	22 (37.9)	17 (36.2)
Gender of participant			
Male	1 (1.6)	1 (1.7)	0 (0)
Female	61 (98.4)	57 (98.3)	47 (100)
Older sibling			
Yes	34 (54.8)	32 (55.2)	25 (53.2)
No	28 (45.2)	26 (44.8)	22 (46.7)
Single parent family			
Yes	4 (6.5)	3 (5.2)	2 (4.3)
No	58 (93.5)	55 (94.8)	45 (95.7)

Figure 1: Geographic distribution of study participants

Results: Key themes and factors

Theme	Factor	Description
Family environment	Factors that influence family mealtimes	The values that parents considered most important when deciding what and how to feed their infant / child during family meal times.
	Role of gender in shaping infant feeding practices	The role male and female partners had in buying, preparing, cooking and giving food to the infant / child.
	Grandparents' role in providing unhealthy treats	The foods and food routines that grandparents had control over and role of unhealthy 'treats' as a customary part of the grandparent / infant relationship.
	Older siblings influence on feeding	The influence that older siblings have on shaping what the infant / young child ate and drank.
Work routines	Work-related factors that influence parents' availability of time	The perception and / or availability of time depending on work patterns.
	Influence of childcare on infant feeding practices	When babies and infants were not looked after by either one of their parents.
Information and guidance	Role of information and guidance in creating uncertainty	Lack of clarity on best practices for starting solid foods with the infant / young child
	Role of product branding in influencing purchasing behaviour	A belief that baby brands were safe and appropriate because they were specialised in that age group.
Food environment	Role of the baby aisle in generating trust	A belief that products sold on the aaisle where all infant / baby food is grouped must be highly regulated and therefore safe and healthy.
	Role of front of pack labelling in generating trust	The design and information on the front of a product's packaging that make it look appropriate and attractive.
	Influence of cost on food purchasing behaviour	The prices of products, as well as parents' perceptions of affordability relative to other products.
	Influence of cafes and restaurants on dietary choices	Food consumed when not in the home environment, such as snacks or picnics made at home for consumption outside, or purchasing food or drink in a café or restaurant for the infant / young child to eat or drink.

Timeline of factors that influence provision of home prepared and commercial foods

Home prepared foods

- Home cooking is primarily the responsibility of the mother

- Mothers returning to work batch cook home-made meals over weekends
- Mothers prepare meals for when they are not at home

- Healthy foods, including fruits and vegetables, given a high priority
- Home cooked meals are the cheapest option

- Some parents respond to allergies by home cooking meals (others navigate through commercial products)
- Infants exposed to new foods at nursery

- Food provided at nursery takes pressure off home cooking
- Many parents' meal-times move to later in the evening, at which time infants are given a snack

4 – 6 months

10 – 12 months

16 – 18 months

Commercial foods

- Parents balance infants' enjoyment of food over health benefits
- Parents display implicit trust in products on the baby isle
- Claims such as 'encourages self-feeding' or 'melt-in-the-mouth' are appealing to parents
- Commercially prepared foods seen as a safe option for infants

- Fruit purees and smoothies seen as source of fruit and vegetables
- Follow-on-formula seen as next step to infant formula (due to branding)

- Increased reliance on frozen foods and toddler ready meals, particularly when mother is working
- Increased provision of treats from fathers
- Mothers' unhealthy relationship with food influences infant feeding practices

- Branded products fill information gap on feeding practices

- Approach to feeding more relaxed, with increased provision of snacks
- Introduction of adult snacks, such as soft crisps or plain biscuits
- Infants provided with snacks intended for their older siblings
- Grandparents are often a source of unhealthy 'treats'
- Pre-packaged pouches and snacks often provided when out of the home

- Trust in brands is associated with the purchasing of commercially prepared foods
- Front-of-pack labelling provides reassurance that products are safe and appropriate
- Prepared foods seen as convenient and portable for when out of home

Key factors that influence provision of home prepared and commercial foods among high SEPs

Home prepared foods

- Fathers more likely to be involved in infant feeding, although feeding continues to be the primary responsibility of the mother
- Fathers more likely to work from home, or flexible hours, and support meal preparation

- Healthy foods, including fruits and vegetables, given a high priority
- Home cooked meals are the cheapest option

- Children exposed to new foods at nursery, which are then introduced into the home environment
- Mothers provide home prepared foods by batch cooking over the weekend
- Mothers prepare meals for partners to provide when they are not home

- Majority of parents either work from home, or flexible hours, providing more time to prepare meals
- Mealtimes move to later in the evening to give parents time to prepare food after work
- Provision of meals at nursery removes pressure to provide a substantial meal in the evening

4 – 6 months

10 – 12 months

16 – 18 months

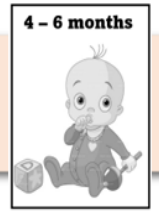
Commercial foods

- Majority of mothers returned to work, providing less time to make home prepared foods in the evening
- Fruit purees and fruit smoothies seen as valuable source of fruit intake

Key factors that influence provision of home prepared and commercial foods among low SEPs

Home prepared foods

- Healthy foods, including fruits and vegetables, given a high priority
- Home cooked meals are the cheapest option



4 – 6 months

- Majority of mothers are at home rather than in work (3/4 of mothers still at home)

10 – 12 months

- Half of mothers still at home rather than in work

16 – 18 months

Commercial foods

- No children are at nursery, therefore no exposure to new food options

- Parents purchase 'healthy' snacks if they are on offer

- Fathers criticised for providing 'unhealthy' snacks
- Parents (when in work) are unlikely to work from home, or flexible hours, and therefore have less time to prepare fresh meals
- High cost of infant snacks drives parents towards adult snacks

- Fathers less likely to be involved in the decision-making process around infant feeding practices, such as introduction of solid foods
- Fathers less likely to work from home, or flexible hours, and therefore unable to support meal preparation

Focus on commercial snacks: factors that influence provision of snacks across SEPs

Snacking

4 – 6 months

- Parents predominantly chose snacks for developmental benefits, rather than nutritional reasons, and were unlikely to scrutinise packages for nutritional content
- Snacks branded as 'melt-in-the-mouth' were particularly popular, as they were choking risk-free and created limited mess

10 – 12 months

- Approach to feeding became more relaxed over time with an increase in the provision of snacks and 'treats' from 10 months onward
- Soft crisps and plain biscuits were seen as a way for the baby to be involved in family food culture
- Grandparents regularly provided foods that parents did not want their infants to consume, such as sugary yoghurts and chocolate

16 – 18 months

- Parents purchase 'healthy' snacks if they are on offer
- Fathers seen as having less confidence in infant feeding and are more likely to provide unhealthy treats, particularly among low SEPs
- While grandparents continue to provide unhealthy 'treats', parents are more relaxed about this

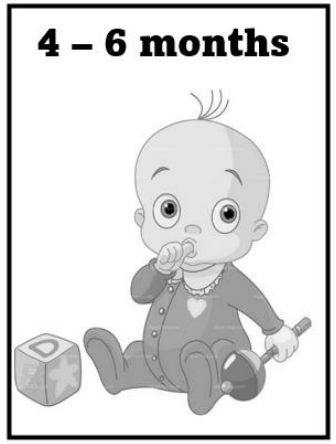
- High cost of infant snacks drives parents towards adult snacks (soft crisps and biscuits), particularly among lower SEPs
- Infants were likely to be eating at the same time as their older siblings and more likely to be eating less nutritious snacks when compared to infants without siblings

- When out of the home, packaged baby snacks were popular options across SEPs as they were portable and convenient. If families were having a treat such as an ice cream, infant snacks were offered as an infant-safe alternative. The convenience of these products justified their higher price.

Results: Home prepared foods

Provision of home prepared foods at 4 – 6 months (family mealtime routines; information and guidance)

There was a desire across SEPs, from most parents, for **mealtimes to be communal and less time-consuming**, and for the infant to participate in existing family food practices, which meant eating at the same time as the rest of the family, liking the same foods as parents and older siblings and not being 'fussy' eaters. There was also a **desire among most parents to provide what was best for the infant**, typically defined as a combination of nutritious and safe foods, with fruits and vegetables given a high priority. Parents regularly cooked meals from scratch, rather than purchasing packaged foods, as it was the cheapest option.

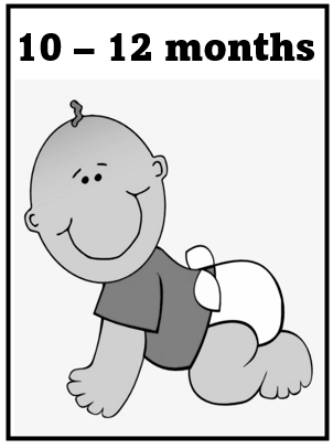


"I just wanted him to fit in with us. I don't really want meal times to be [baby's name] eats and then we have to eat separately and having to cook two meals."

Gillian, high SEP

Provision of home prepared foods at 10 – 12 months (family work routines; access to childcare)

Most high SEP mothers and half of medium SEP mothers had returned to work (3 – 4 days per week). In contrast, **only a quarter of low SEP mothers were working**. Even after returning to work, **meal planning, preparation and cooking continued to be the primary responsibility of the mother**. Mothers returning to work reported difficulty in maintaining a work / life balance and reported batch cooking meals over the weekend for consumption during the week. Some mothers also reported preparing meals for partners to provide to children for times when they would not be home and mealtimes moved to later in the evening.



There was also an **increase in the number of children attending nursery** (14 infants from medium and high SEPs). **Infants were often exposed to a variety of new foods at nursery**, which parents would then introduce at home. Parents displayed a high level of trust in childcare providers knowledge of safe and appropriate food for the child's age. The fact that certain foods (e.g., toast, cereal) were given by formal childcare provided reassurance they were safe and appropriate for the child's age

Results: Home prepared foods

Provision of home prepared foods at 16 – 18 months (family work routines; access to childcare)

Impacts of work on feeding practices continued to be observed at 16 – 18 months, with the majority of medium and high SEP parents, and half of those from a low SEP, returning to work. **Mealtimes often moved to later in the evening**. **Parents from high SEPs were more likely to be able to work from home**, or to have more flexible working hours. In contrast, **those from low SEPs were least likely to report flexible working arrangements**, such as being able to finish work earlier than 5pm, **placing increased stress and pressure on parents to find time to prepare home-cooked meals in the evening**. The majority of parents reported wanting the family to eat together and to provide the infant with a balanced diet with plenty of fruit and vegetables, however, this often was not possible due to a lack of time and work commitments.

Half of infants were in formal childcare at least one day a week; however, this was predominantly among medium and high SEPs, with **only 4% of those from a low SEP attending nursery**. Parents' experience was similar to at 10 – 12 months: being happy with nursery food, exposure to new foods at nursery influencing the home food environment and **infants learning fine motor from other children at the nursery**. In addition, **the knowledge that the infant was having nutritious meals at nursery took the pressure off parents providing healthy meals at home** and meant children often only required a small meal / snack in the evening, such as fruit and yoghurt.

"She loves the ham and cheese one in the pasta. That is really easy because most evenings I am not here …. My partner, obviously, struggles to cook, so something like that pasta is great for him because he can just put it in the saucepan and for her, that is a meal. She is quite happy to sit and have that as a meal."

Jade, low SEP

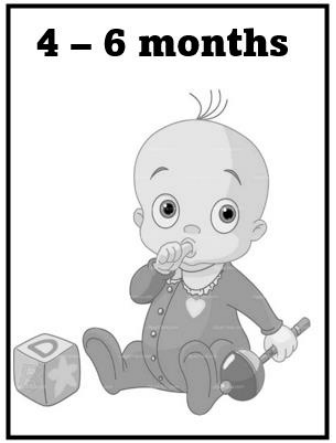
Results: Commercial foods

Provision of commercial foods at 4 – 6 months (information and guidance; branded products; baby aisle; trust in labels)

Infants' **enjoyment of food was the justification for providing less nutritious foods** such as chocolate or ice cream, with parents reporting pleasure in seeing the reaction to these items. There were high levels of **uncertainty around practical elements of feeding**, such as when to give which foods, in which consistency, and how to prepare and store them. This was in part due to a perceived lack of information on the NHS Start 4 Life website. **Branded products often filled this information** gap.

The **role of brands in providing information was most notable amongst parents that lacked confidence** in their own food preparation and cooking skills. Ella's Kitchen was mentioned by numerous parents and the Ella's Kitchen website and free weaning guide was identified across SEPs as a source of reliable information. This trust in brands was associated with the purchasing of commercial foods.

Parents displayed an **implicit trust in products sold on the baby aaisle**, with an assumption that products sold on the baby aisle must be safe and appropriate for infants. Parents **actively sought products that included phrases such as 'pure' and 'simple'**. Parents also relied on brand's age recommendations, although this created confusion as it would often contradict the six months recommended by health professionals.



Snacks branded as 'melt-in-the-mouth' were particularly popular, as they were choking risk-free and created limited mess. Out of the home, **packaged baby snacks were popular options across SEPs as they were portable and convenient**

"I quite like the Ella's Kitchen … they do so many different flavours. I wasn't put off by the ingredients as such. I find the organic pouches have got lovely ingredients in them. I don't worry. I don't think, oh, there's too much sugar in this or there's an E number or anything like that. I was always quite careful about picking, well let's put it, the fancy pouches that I felt had natural ingredients in.

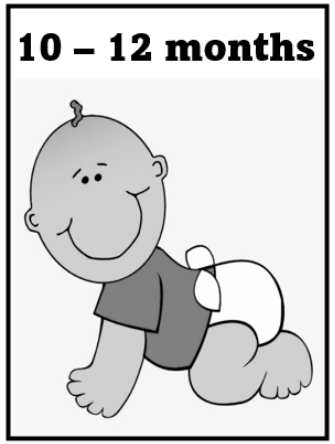
Astrid, high SEP.

Results: Commercial foods

Provision of commercial foods at 10 – 12 months (family mealtime routines, older siblings, grandparents, cost, eating out, trust in labels)

For most parents, the approach to feeding became more relaxed over time with an increase in the provision of snacks and 'treats'. Soft crisps and plain biscuits were seen as a way for the baby to be involved in the family food culture. While parents from low SEPs reported buying adult snacks (soft crisps and biscuits) because they were cheaper than infant snacks.

In families with an older sibling, feeding practices and mealtimes had already been formed around the first child, which meant the infant had to fit into established routines. **Infants were likely to be eating at the same time as their older siblings** and more likely to **be eating less nutritious snacks** when compared to infants without siblings. This was because of less nutritious food options being an established part of the family food environment and infants seeing their older siblings consume these products.



Around half of parents across SEPs reported **grandparents providing foods they did not want their infants to consume**, such as sugary yoghurts and chocolate. This was seen by grandparents as a customary part of the relationship with their grandchild.

Cost was reported as an increasingly important factor. **Despite baby pouches being perceived as expensive, they were purchased due to the variety of tastes and ingredients provided and the reassurance that the baby was being exposed to a wider variety of foods**. Parents commented they would have bought pouches more frequently if they were cheaper

"That's why I like the pouches as well, because he won't eat that much fruit and vegetables that I put in front of him. If I can still give him a pouch every day then he's getting some sort of … fruits and vegetables."

Elizabeth, low SEP.

Results: Commercial foods

Provision of commercial foods at 16 – 18 months (family work routines, gender roles, family mealtime routines, cost, older siblings)

Working practices continued to shape eating practices and resulted in mealtimes moving to later in the evening. **Commercial foods (pouches and ready meals) were considered useful for the days when the mother was working** and had limited time to cook. **Most fathers were reported as having less confidence** in infant feeding and were likely to provide commercial foods and treats (particularly among low SEPs).

Four mothers (all high SEP) mentioned a poor relationship with food as a reason to not restrict the infant's diet. Conversely, another four mothers (two high SEP, one medium SEP, one low SEP) cited having an unhealthy relationship with food as a reason for giving only healthy foods and restricting intake of foods high in sugar to avoid the infant 'becoming a chocoholic' like them.

Cost was again raised by parents as a factor that influenced food behaviour. Those on **low SEPs reported purchasing adult snacks over infant snacks**, due to the lower costs. Those from **medium and high SEPs reported frequently purchasing commercial meals** as back-ups and quick options for the infant. For these families, cost was not a limiting factor.

Parents had become more relaxed about grandparents' provision of treats by this stage. The **influence of older siblings continued be reported**, with children requesting less nutritious snacks or drinks after seeing them being consumed by their older sibling.

"My partner will only really give [infant] something very easy. He would never look in a recipe book or make him a recipe that would always be what I do"

Maddy, low SEP

Discussion: Impact of time

Mothers have a desire to do what is best for their child in terms of providing healthy and nutritious meals over the first 18 months of parenting. However, factors such as lack of time (particularly after returning to work), convenience, insufficient support from most fathers, enjoyment in seeing how infants respond to new foods, uncertainty around infant feeding practices and an implicit trust in branded products all direct mothers towards commercial foods.

Impact of time

Medium and high SEP mothers are most likely to report flexible working hours and options to work from home, however, the offer of flexible working does not always result in an improved wok-life balance, due to work-family boundaries becoming blurred and increased multi-tasking (9). Similarly, being out of employment does not provide mothers with more time to provide home prepared meals due to having a greater share of childcare responsibilities and it being less likely that the child will be in formal childcare (10). Disparities in accessing childcare may in part be due to the low uptake of the UK governments tax-free childcare programme among low SEP families, because of the complex and time-consuming application process and low SEP parents on universal credit not being eligible.

Options to consider that could alleviate time pressures and provide parents with more time to spend on feeding and mealtimes include **increasing eligibility of the governments tax-free childcare programme, therefore ensuring all parents have equal access to children's nurseries.** Findings from this study suggest that only 4% of low SEP families used formal childcare services, compared to around 50% of medium and high SEP families. Unequal access to childcare exacerbates existing inequalities, with medium and high SEP parents reporting reduced pressure to provide evening meals and introduction of new foods into the home environment as a result of being exposed to new foods at nursery.

Given the reliance parents (accessing childcare) place on providers to offer healthy and nutritious meals to their children there are options to ensure the food provided is of a high nutritional standard. For example, a 2016 systematic review of 71 interventions applied in nursing settings (12), identified the potential to support nurseries in delivering interventions that **promote healthy eating alongside increased physical activity through staff nutrition training, parental involvement in meal planning, identifying and responding to hunger and satiety cues and introduction of national healthy eating policies.**

Discussion: Gender roles

Gender roles

Across SEPs, mothers had primary responsibility for childcare and infant feeding at all time points. While high SEP fathers have more involvement in infant feeding than low SEP equivalents, this typically involved provision of 'simple' meals, or meals that had been prepared by the mother. Over time, most fathers were increasingly viewed as lacking confidence on preparing foods and dealing with dietary demands. This gender imbalance was further exacerbated by structural barriers to taking shared parental leave. Only 2% of eligible couples within the UK take shared leave (13), and many low SEP fathers are not eligible as a result of being self-employed, on zero hours contracts or agency workers.

Greater equity in shared parental leave would increase the father's role in cooking and preparing meals. The UK could learn from countries such as Sweden, which has one of the most generous and flexible parental leave systems globally, with each parent eligible for 240 days paid leave up until the child turns 12 years old (no more than 96 days to be used after the child's fourth birthday), at about 80% of their salary.

Previous research has shown that shared parental leave results in fathers being more involved in childcare and other household activities and is associated with improved cognitive development and educational attainment of the child, increased rates of breastfeeding, stronger father-child relationships, reduced likelihood of parental divorce and improved mental health of fathers (14 - 16).

Divisions in parental care, however, will not be addressed by removing barriers to shared parental leave alone, with 55% of UK mothers and 60% of fathers not wanting to take shared leave . This is not simply a case of parents wanting mothers to have the bulk of childcare responsibility, rather the practicalities of breastfeeding, financial implications and health concerns after birth for both the mother and baby all influence this decision-making process. **To increase fathers' involvement in infant care, particularly feeding, fathers from all SEPs could be offered tailored meal preparation guidance and training, with evidence to suggest that even relatively brief group educational interventions can enhance father-child interactions.**

Discussion: Access to information

Access to information

Across SEPs, mothers reported inconsistent and contradictory information on infant feeding practices, such as when to introduce solid foods, how to prepare foods and how to store food, as observed in previous studies (17,18). The NHS Start 4 Life website and healthcare visitors, in particular, were criticised as providing inadequate information on infant feeding, while friends, family, commercial products, websites and weaning guides (e.g., Ella's kitchen www.ellaskitchen.co.uk) were valued sources of information.

This trust in brands was associated with increased purchasing of commercial products, including baby pouches, snacks, ready meals, fruit purees and smoothies, while mixed messaging left mothers choosing the advice which best suited them, which was often that provided by commercial products. It should be noted that criticism towards healthcare visitors may in part be due to impacts of the COVID-19 pandemic, with in person visits replaced with self-assessment questionnaires. **Given their perceived benefits, the government and NHS should consider re-introducing in-person health visitor appointments.**

Parents across SEPs identified a need for clear and reliable information, from a trusted source, that supports mothers in all aspects of infant feeding. The UK could learn from global examples, such as MomConnect, a South African maternal health platform connecting over two million mothers via a mobile phone application (19). MomConnect, developed by government (National Department of Health), healthcare, university and private sector organisations, provides a range of services including automatic registration with a health professional, weekly age-appropriate messaging over the first year of infant development and a virtual help-desk.

Development of a similar platform in the UK should follow WHO guidance on maternal and infant health checks over the first year of life (20). The NHS Start 4 Life website could also reflect information provided by the healthcare app, with a particular focus on practical advice and step-by-step guidance.

Discussion: Packaging and labelling

Packaging and labelling

Parents displayed an implicit trust in branded products on the supermarket 'baby aisle', with an assumption that if a product was marketed towards infants and young children it must be healthy and age appropriate. Front of pack claims, such as 'pure', 'encourages self feeding' or 'no nasties' were particularly appealing, with a belief that this information was clear and 'honest'. However, previous research has shown that infant products are often less healthy than claimed, front of pack ingredients do not always accurately reflect what is contained within the product and age recommendations do not always reflect national guidance (21,22).

For example, the provides 'one of 5-a-day' claim is common on infant products; yet 75% of UK infant products that make this claim have been shown not to meet the threshold of 80g of fruit or vegetables. Similarly, fruit pouches and fruit purees which are often advertised as 'healthy' and 'natural' often exceed recommended sugar intake levels (23,24).

Parents rarely reviewed the back label, relying almost entirely on what was presented on the front label. This often resulted in confusion, with front of pack claims of introducing solid foods at four months contradicting healthcare advice on introduction at six months. Similarly, the branding of 'follow-on' infant formula as a 'stage 2 product' clearly resulted in mothers believing this was a necessary next stage of infant feeding.

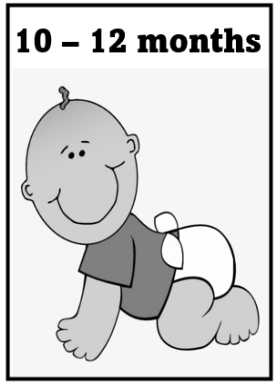
Observations from this study indicate that **products on supermarket baby aisles may not meet Food and Agriculture Organization (FAO) standards outlined in the Codex Alimentarius (25)**, a collection of internationally recognised standards, codes of practice and guidelines aimed at protecting consumer health. **Specifically, products on UK baby aisles may fall short of the requirement that "nutrition and health claims shall not be permitted for foods for infants and young children except where specifically provided for in relevant Codex standards or national legislation". While the FAO's Codex Alimentarius is a voluntary code, the UK could work towards incorporating these recommendations into national legislation to ensure that front of pack product claims accurately reflect the health benefits and age-appropriateness of the products.**

Conclusion

Despite a desire to provide infants and young children with healthy home prepared meals, parents regularly resort to providing commercial foods such as ready meals, snacks and treats. The factors underpinning these dietary decisions are multi-faceted, complex and influenced by historical and social norms, including a persisting gender imbalance in parenting.

Nevertheless, findings from this study suggest that there are mechanisms, predominantly available to high SEP families, that facilitate provision of home prepared meals, including access to shared parental leave and access to formal childcare. However, there are also factors that direct all parents, regardless of SEP, towards provision of commercial foods, including inconsistent and contradictory information on infant feeding practices and an implicit trust in potentially maisleading claims on products available on supermarket baby aisles.

There are tangible steps that can be taken by the government to improve infant dietary behaviour, such as changes in eligibility criteria for accessing shared parental leave and incorporation of FAO guidance on health claims on infant and children food products into UK legislation.



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Further discussion points based on DHSC feedback

It would be really interesting to have further insight on:

- The nature of the ‘inconsistent and contradictory information on infant feeding practices’ that has been highlighted by parents
- On food in the early years setting, do you have any information on what extent the food provision determines the setting parents choose

Do you have any data to provide any further context on:

- Foods prepared across households and how this may differ by SEP
- What families would like to see to help bridge the information gap discussed on slide 2 point

Role of the baby aisle and product labelling

Supermarket baby aisle

The supermarket baby aisle was trusted by parents, with **the view that if a product was sold on the baby aisle it must be safe and appropriate**. The baby aisle provided parents with reassurance when choosing packaged foods and meant they were less likely to examine ingredients on the back of the package. This **trust was maintained across SEPs for the duration of the study**.

At 4 – 6 months, **parents displayed an implicit trust in products on the baby aisle**, with an **assumption that UK regulations are sufficiently strict, and products sold for infants must be safe and age-appropriate**. For those with lower confidence levels in their own cooking, packaged products were seen as a safe and suitable option for the infant.

Levels of trust in the baby aisle were similar at 10 – 12 and 16 – 18 months, with **parents only examining ingredients on the back of products if there were food intolerances or allergies to consider**. There remained an **assumption that salt and sugar levels in products must be safe and appropriate** if they were marketed at infants and babies. No difference was observed between SEPs.

Product labelling

Front-of-pack labelling **not only influenced which products parents purchased**, but also **provided reassurance that products were safe and appropriate**.

At 4 – 6 months, parents **actively sought products that included phrases such as 'pure', 'simple', and 'no nasties**' on the front label. This implicit trust was reinforced by the belief that ingredients were presented clearly and 'honestly' with no jargon.

Front of pack **claims on snack products, such as wafers and crisps, were mentioned by parents at 4 – 6 months as a key reason for choosing these products**. Snacks branded as **'melt-in-the-mouth'** were particularly popular.

Fewer packaged products were bought at 10 – 12 months, with the exception of baby snacks, yoghurts and fruit pouches. However, **parents still reported having trust in front-of-pack labelling, particularly regarding age recommendations and portion sizes**. There was also a **perception that follow-on-formula was the 'next stage' in infant feeding from six months**, as this is the age stated on packaging.

Nature of inconsistent and contradictory information on infant feeding practices

The majority of parents reported a lack of clear information on infant feeding practices and reported **uncertainty about when and how to first introduce solid foods and when to cease breastfeeding**. They also felt **overwhelmed by information** available from websites, brands, books, health professionals, friends and family.

Messaging from healthcare professionals and websites

All **parents reported having limited access to healthcare professionals**, although this was in part due to the COVID-19 pandemic**. Parents preferred in-person visits over telephone consultations**, even if they had no specific issues to discuss. However, healthcare professionals were reported as providing little support related to infant feeding practices and in starting solid foods.

Parents were also **critical of the NHS Start 4 Life website**, which was seen as providing a lack of practical advice and step-by-step guidance on how to prepare home cooked foods, in what order to introduce different foods and appropriate portion sizes.

Role of branded products

Branded products often filled this information gap through age recommendations on the front-of-pack and recipe suggestions for the first stages of feeding. Ella's Kitchen (an organic baby and toddler food brand widely sold in UK supermarkets) was mentioned by numerous parents and associated free weaning guide was identified across SEPs as a source of reliable information. This trust in brands was associated with the purchasing of commercial foods.

Parents identified a need for clear information on infant feeding practices, such as when to first introduce solid foods and cease breastfeeding. Parents also desired in-person health visitor appointments to be resumed, rather than online or telephone appointments.

Role of food in early years settings

While **information was not provided on the quality of food provided in early years settings, or the degree to which quality of food influenced the settings parents chose**, access to nursery was shown **to expose infants to new foods and a new eating environment**. This **exposure to new foods influenced the home food environment, with parents introducing foods after seeing what was provided by the nursery**. The fact that certain foods (e.g., toast, cereal) were provided by formal childcare (nursery or a non-family childminder) gave reassurance they were safe and appropriate for the child's age. As the infants got older and had already tried a wide variety of food, the influence of nursery was primarily on the provision of evening meals: **infants often only needed something small in the evening after being fed at nursery**, such as fruit and yoghurt. The number of infants going to formal childcare increased over time.

At 10 – 12 months, around 14 infants were in nursery or at a childminder at least part-time. When children were at nursery, the **majority of their food was governed by what was given there, as it generally included a breakfast, lunch, tea and snacks**. Nurseries introduced children to a variety of new foods, and while not ubiquitous, there was a **general sense of trust in childcare providers and their knowledge of safe and appropriate food for the child's age**. Parents also reported how their infants watched and learned from others at the nursery, encouraging uptake of new foods, which parents would then introduce into the home environment.

By 16 – 18 months, around half of infants were in formal childcare at least one day a week; however, this was predominantly among medium and high SEPs, with only 4% of those from a low SEP attending nursery. Parents' experience was similar to at 10 – 12 months: being happy with nursery food, exposure to new foods at nursery influencing the home food environment and infants learning from other children at the nursery. In addition, the **knowledge that the infant was having nutritious meals at nursery took the pressure off parents providing healthy meals at home** and meant **children often only required a small meal / snack in the evening**, both packaged and non-packaged (such as fruit and yoghurt).

Recommendations for future research

1. Quality of food provided in early years settings

Parents, particularly among medium and high SEPs, valued the role of early years settings in providing regular infant meals, therefore taking pressure off provision of foods within the home environment. While parents reported being happy with quality of food provided, there is an absence of information on the quality of food provided in early years settings and how this meets dietary requirements of infants. Further research is required to understand the quality of food served in both private and public early years settings.

2. Provision of snacks and other commercial products

Infant snacks and other commercial products are valued by parents as a source of convenient, 'mess free' foods that can be provided either within the home, or easily transported for when out of the home. Further research is needed to understand how parents can be encouraged to provide 'healthier' snack options for both inside and outside the home environment

3. Involvement of fathers in infant feeding

Across SEPs, fathers were reported as lacking food preparation skills and being a source of unhealthy snacks. Previous research suggests that even brief interventions can be effective at increasing fathers' involvement in infant feeding. Further research should explore which interventions are most effective at increasing fathers' involvement in meal preparation and provision.

4. Influence of wider family environment on dietary decisions

This research suggests that the presence of older siblings and grandparents results in increased provision of unhealthy snacks. Further research is needed to understand what role the wider family structure has on infant dietary behaviour, and actions that can be taken to reduce the provision of unhealthy snacks from wider family members.

5. Provision of follow-on formula

Although follow-on formula was chosen for a variety of reasons, it was clear that the branding as 'Stage 2' made it seem like a logical and necessary choice for optimal development. However, this did not transfer to 'Stage 3', or toddler milks, as parents predominantly switched to cow's milk when the child was one year old. Further research is needed to explore the factors that drive parents, across SEPs, to provision of follow-on (stage 2) formula and health and development impacts of this decision.