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Cassandra Screti, Katie Edwards, Jacqueline Blissett

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# Understanding family food purchasing behaviour of low-income urban UK families: an analysis of parent capability, opportunity and motivation.

Cassandra Screti, Katie Edwards & Jacqueline Blissett*
School of Psychology and Institute of Health and Neurodevelopment
College of Health & Life Sciences
Aston University
Birmingham, UK.

*Corresponding author J Blissett
j.blissett1@aston.ac.uk

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KE contributed to the acquisition and analysis of data, drafting and revision of the article.
JB conceptualised the study and contributed to the design, interpretation of data, drafting and revision of the article.
All authors approved the article for publication and are accountable for all aspects of the work and its accuracy and integrity.

**Conflict of Interest**

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## Abstract

**Objective:** Family food purchasing decisions have a direct influence on children's food environments and are powerful predictors of obesity and dietary quality. This study explored parents' capability, opportunities, and motivations regarding food purchasing for their families, as well as barriers and facilitators of healthy food purchasing behaviour, in an ethnically diverse, low-income area.

**Design:** Semi-structured interviews with parents of under-11-year-old children were conducted to investigate family food purchases, both when eating inside and outside the home. Interviews were analysed using framework analysis mapped against the COM-B model (Michie et al., 2011[1]).

**Setting:** An ethnically diverse, low-income area in Birmingham, UK.

**Participants:** Sixteen parents (13F, 3M) of under-11-year-old children. 75% Pakistani, 12.5% White British, 6.3% White and Black Caribbean, and 6.3% "Other".

**Results:** Four themes were identified: i) I know how to provide healthy meals for my family, ii) Family food purchase decisions are complex, iii) I want what they are eating and iv) Healthy eating is important but eating outside of the home is a treat. The barriers of healthy family food purchasing were predominantly at family and community levels, including time, cost, and both parents' and children's food enjoyment and preferences. Facilitators of healthy family food purchasing were primarily identified at an individual level, with high levels of capability and motivation for healthy food provision.

**Conclusions:** Attempts to enhance parental capability to improve healthy food purchasing through nutrition education is not likely to be a useful intervention target in this group. Emphasis on enjoyment, palatability and value for money could be key to increasing parental motivation to purchase healthy family foods.



## Keywords

Food purchase decisions; food environment; behaviour change; COM-B; parent; family.

## 1. Introduction

It is well established that families living in lower income areas and families from ethnic minorities have greater risk of suboptimal diet and obesity outcomes in comparison to more affluent families of majority ethnicity[2,3]. Dietary quality and obesity have multiple and complex interacting predictors, and one of the primary determinants of quality of diet is the immediate food environment[4]. The accessibility and availability of foods in and out of home, including home food environment, shopping practices and consuming family meals in restaurants, has been consistently associated with children's obesity and dietary quality[5-8]. Family food purchasing decisions have direct influence on immediate food environments and are powerful predictors of intake[9]. Therefore, understanding the decisions that parents make about family food purchases for consumption both within and outside the home is key to supporting policy and practice to improve children's diet and weight outcomes in higher risk groups.

Key determinants of purchasing behaviours are availability, accessibility and affordability of food[10]. For low-income parents in the UK, food insecurity has been identified as a 'constant factor', with particularly high pressure on parents in feeding their families during school holidays, when children are not receiving free school meals[11]. Parents reported limited financial resources and constant budgeting to be able to pay bills and feed their children, with many parents using foodbanks[11]. Parents also reported provisioning food for periods of greater demand (such as school holidays) and using numerous strategies to stretch their budgets further, including downgrading the food brands they bought, purchasing reduced price items, and skipping meals[11]. A rapid review of the qualitative evidence, predominantly based on data from the US, but also including data from UK and Australia, examined parental perceptions of their food environments in low-income families and their influence on food decision making[12]. Barriers to accessing healthy foods included finance and time constraints, and access to food outlets. Individual studies examining food purchasing by ethnically, culturally, and socioeconomically diverse parents also frequently identify cost as primary concerns when procuring food, in both UK and US contexts[13-15].

In addition to availability, accessibility and affordability, children's food preferences are frequently reported to influence parents' purchases too[13-15]. For example, parents with low incomes report shopping whilst children were in school or shopping online to reduce the likelihood of purchases made in response to children's requests[11]. A review of qualitative

evidence also identified children's preferences as key determinants of food decision making in low-income families[12]. Food choices based on children's preferences were made to manage stressful mealtimes arising from fussy eating, or as a direct result of children's requests, and children's food preferences were identified as an important barrier to choosing healthy food. Thus children's food preferences are powerful predictors of the healthiness of the home food environment, through their effect on parental food purchasing decisions.

Parental use of multiple complex strategies surrounding food purchasing demonstrates that these decisions are much more than a simple choice between 'unhealthy' versus 'healthy' foods and underlines the principle that healthier dietary choices are cognitively, emotionally, and practically effortful. One study highlighting the complexity of individual parental decisions about what to feed their pre-school children in underprivileged communities was conducted in Sydney, Australia[16]. Mothers' decisions were influenced by nutrition and health, cost, accessibility, and availability of foods, as well as tiredness and the time required to prepare food, but were also influenced by their children's preferences and demands, modelling of unhealthy food intake by other family members and powerful food advertising aimed at children. Similarly, a study of UK women's perceptions of factors influencing their food shopping choices highlighted the difficult balance between their motivations to make choices in the interest of child health versus meeting family members' food preferences, with children's requests prompting unplanned purchases[13]. Unsurprisingly, cost and children's food preferences are also regularly identified as primary barriers to making changes to healthy eating within the family[17]. Thus, analysis of parental food purchasing needs not only to look at practical barriers and facilitators based on the household and community environment but also individual and family preferences, emotions, and motivations.

One useful model to conceptualise the factors that lead to health behaviours is the 'COM-B' model, also known as the behaviour change wheel[1]. The COM-B model is a framework for understanding behaviour, where three essential components – *Capability* (physical/ psychological), *Opportunity (*social/physical) and *Motivation* (reflective/automatic) - are all needed for *Behaviour* to occur. It is a useful lens through which to identify barriers and facilitators of behaviour in terms of an individual's physical and psychological capability to undertake the behaviour, the surrounding external physical and social opportunity for that behaviour to occur, and the individual's reflective (conscious) and automatic (habitual, emotional) motivation to engage in that behaviour. For example, to make a healthy vegetable

soup from scratch for the family, a parent must have food preparation skills and abilities (e.g. to be able to shop for and chop vegetables - physical capability) some knowledge (e.g. of nutrition, or recipes- psychological capability), access to vegetables, some time and cooking facilities (physical opportunity), have social support or a cultural norm for preparing such food and it being accepted (social opportunity) as well as the intention to plan ahead to achieve this (reflective motivation) and the desire to cook and eat the soup in the first place (automatic motivation). The COM-B approach has been applied successfully to understand family eating habits[18] but to our knowledge has not been applied to family food purchasing behaviour. Thus, identifying aspects of parental capability, opportunity and motivation to make food purchases will provide a useful framework for the development of targeted intervention to support healthier dietary outcomes.

In addition, understanding barriers and facilitators of behaviour at different ecological levels of influence, including the individual, household, local community or region, and broader cultural effects, also helps to identify *how and where* to target interventions. Ecological systems models are widely used in children's eating behaviour research[19] and their application has been instrumental in understanding the drivers of eating behaviour and resulting outcomes such as diet quality[7]. Thus, integrating understanding of capability, opportunity and motivation for food purchasing behaviour alongside the individual, household, community and cultural level of influence, provides a particularly useful approach to identifying intervention targets in terms of both behaviour and context.

Understanding of parents' food purchasing decisions for their children, both in and out of home, in families living in a deprived area is necessary to enable the design of supportive, effective policies and programs to facilitate healthy food purchasing. Therefore, this study aimed to explore the barriers and facilitators of healthy family food purchasing decisions by applying the COM-B approach (examining parents' *capability*, *opportunities*, and *motivations*) to these decisions. Secondly, we examined these barriers and facilitators within an ecological framework, to identify the levels at which subsequent interventions would be best targeted.

## 2. Method

### 2.1. Design

Semi-structured interviews were conducted to investigate people's family food purchase decisions, both when eating inside and outside the home.

## 2.2. Participants

The study was conducted in a discrete geographical area of Birmingham, UK, with high levels of deprivation, greater than average fuel poverty and overcrowding, over 70% of population under 45 years old, around 64% of the population from Black, Asian and Minority Ethnicity groups, relatively low life expectancy, high levels of infant mortality, and higher frequency of takeaways than the city's norm, where around 10% of the population have diabetes and 28% of 10-11 year olds have obesity[20]. Parents or primary caregivers (from here on referred to as parents) were recruited in March 2021 using online advertisements and social media, and snowball sampling through messaging services. Advertisements were placed on local Facebook groups and Twitter pages, and the community centre website. Parents were eligible to participate if they were the primary food decision maker in the family. Parents were also eligible to take part if they could read and speak English, were living in the selected geographical area, and if they had at least one child under 11 years old who was resident with them most of the time. Under 11 years old was the target for child age to capture predominantly pre-adolescent parenting: in the UK, children transition to secondary school at this age, and with adolescence and increasing independence comes a transition from parent-controlled to adolescent-determined eating behaviour[21]. Finally, to be eligible to take part, children in the family could not have any food allergies or chronic illness that interfered with eating behaviour. This study was conducted according to the guidelines laid down in the Declaration of Helsinki and all procedures involving research study participants were approved by the Health and Life Sciences Ethics Committee at Aston University (#1748). Informed consent was obtained from all participants using an online consent form. After conducting 16 interviews, the research team acknowledged it would be unlikely for additionally collected data to provide any new perspectives, and therefore concluded data saturation had been achieved.

## 2.3. Materials

### *2.3.1. Sociodemographics and dietary information*

Demographic information was gathered; parent age, gender, ethnicity, number of children, and dietary requirements were assessed. Information about the number of adults and children in the household was measured. In terms of dietary information, parents responded 'Yes' or 'No' about whether they had any special dietary requirements or dietary needs, including vegetarianism, veganism, or following a diet for religious reasons. Parents who responded 'Yes' (n = 11) were prompted asked to provide more details, to which all eleven parents

reported a Halal diet. Parents subjective social status was examined using the MacArthur Scale of subjective social status[22]. The scale features an image of a ladder, with the top rung depicting higher social status (score = 10), and the bottom rung depicting lower social status (score = 1). Participants are asked to select the ladder rung that best represents where they perceive themselves to stand on the ladder, in reference to the rest of society. Lower scores indicate participant perceived lower subjective social status. The scale has been extensively used in health research and has been found to be a reliable[23] and valid[24] measure.

**2.4. Procedure**

Each interview took place online using programmes such as Skype or Microsoft Teams. Interviews lasted around 60 minutes depending on how much the participant had to say and were audio recorded within the digital meeting platforms. Prior to data collection, the researcher engaged participants in a pre-interview rapport building conversation. Participants could choose whether to have their video cameras on during interviews. During the interviews, participants were asked eight semi-structured questions which were formulated to investigate participant's family food purchases for food consumed both within and outside of the home, including the barriers and facilitators to food purchases (see Supplementary File 1.). By using semi-structured interviews, participants were able to speak freely about their experiences with the researcher. Where possible, the researcher probed the participants further for more detail, to gain a greater understanding of their experiences. Parents received a £20 shopping voucher after participating.

**2.5 Data Analysis**

Data were securely stored using password protected cloud storage. Each parent was assigned a unique and anonymous participant number. Each interview was transcribed by the transcription company TranscribeMe. Transcripts were checked for accuracy and anonymised. Interviews were analysed using a framework analysis[25], which is beneficial for synthesising large datasets[26]. To form the framework, two researchers initially familiarised themselves with the data. The researchers then took an inductive approach to identified potential codes, relating to conceptual notions of family's food purchasing decisions, in a small selection of transcripts independently. Identified codes were discussed and finalised. To form the base of the coding framework, connecting ideas within the codes were grouped together to reflect the components of the COM-B model of behaviour[1]; *Capability* (physical/ psychological), *Opportunity (*social/physical) and *Motivation* (reflective/automatic) (see Supplementary Table 1). In a

reflective process, the researchers returned to the transcripts to see if the coding framework was appropriate, before applying the coding framework to the remaining interview transcripts. Throughout the coding process, when data items did not fit the current framework, new codes were added to the framework, and previously coded transcripts were checked to see if the new codes were applicable. Once the indexing process was complete codes were re-grouped to identify themes within the data. Themes were formed in a sensical manner, through identifying patterns and similarities amongst codes across the coding framework. Using an excel spreadsheet, a framework matrix was developed for each theme, whereby each subtheme was allocated a column, which allowed for the exploration of the main concepts within each theme to identify barriers and facilitators. Finally, within the ecological framework, these barriers and facilitators were classified at the individual, family/household, and community/culture levels.

## 3. Results

### 3.1 Participants

In total, 16 parents participated (13 women, 3 men). Participants had a median age of 37 years (range = 29-51 years). Participant ethnic background was: Pakistani (n = 12), White (n = 2) British, White and Black Caribbean (n = 1), and "Other" (n = 1). Most families (68.8%) followed a halal diet for religious reasons. Parents had a median of 3 children (range 1-5) per household, of which a median of 2 children were primary school aged, i.e. under 11 (range 1-3). Households comprised a median of 5 people (range 3-8). Mean subjective social status was 5.13 (SD = 1.63), indicating that participants in general felt they were neither high nor low in social status.

### 3.2 Framework analysis

Following the framework analysis, four main themes were identified: i) I know how to provide healthy meals for my family, ii) Family food purchase decisions are complex, iii) I want what they are eating and iv) Healthy eating is important, but eating outside of the home is a treat. Table 1 illustrates selected quotes representing the main themes and subthemes.

TABLE 1 about here

**I know how to provide healthy meals for my family**

This theme explores parents' self-assessed ability to identify, purchase and prepare healthy foods for their family.

Caregivers were able to identify healthier foods and provide a rationale for the nutritional benefits of healthy eating. Overall, parents believed eating healthily included a varied diet of both healthy and unhealthy foods.

> *"Healthy eating? It's a good balance of your food stuff…you will get some fats and things in there…a mix of your proteins and your carbs…we will let them have sweets and things like that on the understanding that they need to actually get some fruit down maybe first before they get the sweets." (Parent-2)*

Parents were capable of cooking healthy meals for their family, describing cooking as "*quite easy…once you get to it" (Parent-2),* and preferred to do so to ensure the quality of the ingredients. Most parents believed the cooking methods used influenced whether meals were healthy or not. Using 'healthier' cooking methods, facilitated the belief that families were eating healthy meals and following a healthy lifestyle.

> *"But my wife's a healthy cook…when she's making curries or whatever, very little oil is used. Instead of making chicken steaks, we're grilling them instead of frying them. We've got an air fryer...it's the way we cook it." (Parent-14)*

The role of home cook was an essential part of a parent's identity; parents willingly dedicated time to finding recipes and planning meals to prepare for their family. The role of the home cook was positively reinforced.

> *"If I haven't cooked; if I haven't done the hard job of feeding them myself, I feel like they haven't eaten properly…and I am guilty" (Parent-6)*

Parents believed home cooked meals were important and wanted their children to "*have a conversation between themselves" (Parent-8)* during family mealtimes and create a sense of togetherness within the family. However, a lack of time to prepare meals for the household facilitated a parents' decision to "*just order a takeaway or take the kids there than just spend two hours of cooking" (Parent-15).* Parents discussed their knowledge of how to eat healthily when purchasing foods outside of the home but questioned if this was possible. Despite the limited opportunity, some families were able to look through food establishments menus to find healthier food choices, such as "*grilled fish with his veg and his beans and…the kids will get a jacket potato" (Parent-1).* However, most parents had not even considered the

possibility of purchasing healthy foods from a takeaway or restaurant. Instead, parents perceived such foods as highly calorific, greasy and over processed.

> *"I don't think there's an option for healthy food when it comes to takeaway. I think if you look at it…it's either, burgers, paninis, chips" (Parent-13)*

*COM-B summary: I know how to provide healthy meals for my family*

Evidence for all aspects of the COM-B model were present in this theme, but the concept of psychological capability dominated food purchasing decisions. There was a consensus that parents knew what they needed to do to provide healthy foods for their family; knowledge of healthy eating and healthy cooking methods contributed to their food purchasing decisions. Most parents perceived meals prepared outside of the home as unhealthy, due to the cooking methods used. In general, parents enjoyed producing healthy food for their family and saw doing so as part of their identity.

**Family food purchase decisions are complex**

Food purchasing decisions were complex and directly related to parent's opportunity to purchase desired food. It contains two subthemes exploring the complexities of purchasing foods and how parents used problem-solving to assist in their food purchasing decisions.

*Purchasing food is complex*

Despite their high levels of knowledge and motivation, families felt limited in their purchases. Cost was the most important factor families had to negotiate when assessing their opportunity to purchase foods in a supermarket; with healthy foods often priced higher than unhealthy alternatives.

> *"When you're going through a lot of salad and veg and fruit, then you have to think about the price. And think, "Well, where's the best option?" (Parent-9)*

The high price of foods limited families' opportunities to purchase them, despite feeling highly motivated to do so. This left parents "*feeling a bit frustrated because I don't have the possibility to offer the kids something healthier" (Parent-15)*. The cost of foods prepared outside of the home was also a barrier, as parents did not feel the high cost was reflective of the meal's contents.

*"if you want to go for a grilled salad or grilled chicken salad, sometimes it's like, "Why are you charging so much money?" when it's only a few strips of chicken and a bowl of salad that you probably could make it yourself at home" (Parent-10)*

Most families followed a halal diet and therefore vigilance was required to ensure purchased foods met their dietary requirements. For most families, such foods could only be purchased in specific shops and butchers. Despite their dietary restrictions, families believed they had enough opportunity to purchase foods prepared outside of the home, as they knew which food establishments could meet their dietary needs. However, some parents still felt limited in their choice of food establishments, as they were unable to visit restaurants or takeaways providing non-halal meals "*because then you've always got that risk of contamination…I wouldn't take the risk" (Parent-9)*

*"It has to be halal and it has to be-- if we're buying like a chicken or some meat, it has to be from the halal butcher…chicken and the meat and everything, they have to be from a halal shop" (Parent-7)*

*The use of problem-solving*

Food purchasing decisions were complex; this encouraged families to formulate strategies to overcome these challenges and ensure their children ate healthy meals. The most common problem-solving method was for parents to purchase foods from multiple food retailers, as purchasing *"different things from different shops works out a lot cheaper, rather than buying it all from one place" (Parent-8).* While this was often described as a laborious task, the benefits of saving money and purchasing good quality food for their family was worthwhile for parents. To further overcome financial barriers, families purchased food items when they were sold at a reduced price.

*"If things are on offer, that's why I stock up due to the price. If it's half-price or buy one get one free, whatever it is, or if it's a third off…I do stock" (Parent-16)*

Parents often sought and benefited from social support provided from people outside the household. Parents often discussed recipes and ways to encourage children to eat healthier foods with other parents.

*"Oh, that's a definitely talked about technique on the playground…We've talked about different ways of sneaking different things into their food. It's quite ingenious sometimes what you can come up with." (Parent-3)*

*COM-B summary: Family food purchase decisions are complex*

The impact of physical opportunity on healthy eating dominated this theme. Barriers related to physical opportunity led to impact on automatic motivation through frustration. Purchasing foods to eat inside the home was complex and often influenced by a variety of factors, including the cost and subsequent quality of foods, as well as the families' dietary requirements. Families further experienced a variety of barriers to purchasing foods that were prepared outside of the home; including the cost and quality of the purchased foods and whether the food establishment could meet their dietary requirements. A major barrier described by parents in this study was the lack of healthy halal options available, which left parents feeling frustrated.

**I want what they are eating**

This theme explores how other people's food decisions influenced children and parents' food desires. Children benefited from their parents' modelling healthy eating behaviours during their shared meal times, "*because they'll see us eating then, [they're] like, "Okay. We want to try it too." (Parent-10)*. Similarly, when eating outside of the home, some parents modelled healthy eating habits to their children.

> *"Then because we're a family, we all sort of stick together because if one eats healthy...we'll tend to get the kids something; a healthy option as well if we're getting healthy. The main influence comes from the family." (Parent-12)*

However, not all social modelling was positive. In social settings outside of the home, such as children's play areas, parents often reported their children's food desires were directly influenced by other children's food purchases. This resulted in children demanding their parents purchase frequently available unhealthy food items, such as ice-cream or fast-food.

> *"When I have the kids with me, they won't go for the healthy options. They'll see the burgers chips and whatnot…There is quite a lot of people so they focus on what they're having as well" (Parent-7)*

Parents were also affected by modelling: they were more likely to purchase snacks when they socialised with others outside of the home; *"If I was on my own, I'd never get anything. But when I'm with somebody, my friends or my girls or my family, then we normally do" (Parent-9)*. Furthermore, when looking for an eating establishment, reviews left by strangers were more influential to some parents than any other factors (e.g., cost, dietary requirements), as *"you want to ideally go somewhere that always has decent reviews." (Parent-14)*

*COM-B summary: I want what they are eating*

The role of social opportunity dominated this theme. Social influences significantly impacted the foods families purchased outside of the home and even the eating behaviours of strangers directly influenced family's food choices. Children and parents wanted to eat foods that others had experienced as pleasurable. Families used these social opportunities to seek support, sharing recipes and advice to overcome challenges in providing healthy foods for their family.

**Eating healthily is important, but eating outside of the home is a treat.**

Caregivers were highly motivated to purchase and prepare healthy foods to ensure the health of their family members. Despite this, there was a distinct lack of motivation to purchase healthy foods from restaurants and takeaways. This theme has three subthemes; *I want to look after my family*, *parental frustrations over a child's fussy eating*, and *eating outside of the home is a treat, you don't need to eat healthily*.

*I want to look after my family*

Ensuring children's health was the most significant motivational factor for parents to prepare healthy meals, as parents wanted their children "*to grow up fit, well, and healthy" (Parent-4).* Eating a healthy diet was perceived as important for a person's mental health, wellbeing, and education.

> *"I've always said feed the belly and feed the mind because if you put good food into your bodies that's fuel for their minds." (Parent-6)*

A selection of parents had more specific worries about their children developing future health complications due to a poor diet; "*if I'm providing them unhealthy food, they can develop diseases, and they can get ill." (Parent-15).* These worries were enhanced when there was a family history of diet related health complications, or within families whose children had already experienced poor physical health or dental complications. This motivated parents' desires to change their lifestyle and eating habits as "*once [my child] puts it on, it's just going to be really difficult to lose" (Parent-8).* In order to protect their child's health, parents sometimes used pressure to eat healthier foods.

> *"It's as I feel any reasonable parent should be. You don't want your kids to be unhealthy. So I try and do it for them because I understand they could be healthier for*

*them than just eating junk. So it's purely to look after them and have a good start in life. They may hate me for it when I'm older, but hey, at least they'll be healthy and hating me." (Parent -2).*

Parents restricted children's access to unhealthy foods as another way of protecting children's health, parents reported that their children "*already have enough sugar... they don't need any extra." (Parent-8).* However, some parents held the contradictory view that while it was important to restrict children's access to unhealthy foods, it was acceptable to use sugary foods as a reward for their child's good behaviour; *"If they've behaved really well, I say, "You can choose whatever you want" (Parent-6).* Furthermore, a minority of parents believed that denying children food could have negative consequences, and could encourage the eating of unhealthy foods without their knowledge, as children will "*try and get it from somewhere else" (Parent-2).*

While some parents reported situations where they may lack motivation to eat healthily, with one parent admitting they "*hate healthy eating" (Parent-14)*, most parents were motivated to provide their children with healthy foods, in part because of their own childhood experiences of healthy eating; both positive and negative.

*"It's like all the mistakes I made when I was younger, not eating as healthy. Because we didn't have that when we were younger, having salad all the time, whatever. We used to just eat our main meals and that was it. We have ten times more salad and veg and fruit, healthy foods, than when I was younger." (Parent-9)*

As a further demonstration of their commitment to eating healthily, a small number of families began growing their own foods to increase their child's motivation to eat healthily.

*"They've decided to grow their own vegetable that they'd want to do… …that's their own specific vegetable that they're going to be in charge" (Parent-8)*

*Parental frustrations over a child's fussy eating*

Motivation to provide healthy meals were hindered for parents of fussy eaters; parents felt it was pointless to purchase foods their fussy eating child had not eaten previously because "*New is bad" (Parent-2).* Parents were therefore left deliberating which foods to buy, as they negotiated the challenge of having *"to cook what everybody likes" (Parent-8)* while making adjustments to "*tweak it slightly for somebody else" (Parent-3).* This often resulted in

families feeling conflicted, as they were motivated to purchase healthy foods, but restricted to do so due to their child's fussy eating.

> *"We don't buy as many vegetables as we should. But it's mainly [my] youngest child…[they do not] like vegetables...when I make a meal, I just like to make one meal so that will suit everyone. I can't make as many vegetables as I should" (Parent-5)*

Parents were less inclined to purchase foods that they themselves did not want to eat and chose foods that meet their "*own desirable flavours" (Parent-7),* thus preventing parents from modelling eating a variety of foods to their children.

> *"I might have tried [a food] before and gone, no, that is just wrong…there's no way I could put on a straight face to say to kids, "Mmm. That's lovely. Try it." (Parent-2)*

For children who were perceived to be fussy eaters, families used coping strategies to encourage their children to eat a greater variety of foods. To enhance healthy eating in fussy eaters, parents concealed previously rejected foods into the child's meals, often aiming to disguise the unfavourable food's visual appearance, taste, and texture.

> *"It's rather than just saying, here's some broccoli. Eat it. Because if the kids decide they're not going to have it, you're never going to get that broccoli in that kid. But whereas if you hid it in something that they like, and you could disguise it, now there's a chance they're going to eat it." (Parent-2)*

Additionally, to increase a fussy eating child's motivation to eat healthy foods, parents encouraged children to choose which foods they would like eat, as having ownership over their chosen foods positively influenced children's desires to eat healthily.

> *"[My child will] eat it because [they] know [they] chose it and [they've] got to eat it. I think something that you're picking, I'm giving you responsibility for picking something" (Parent-1)*

*Eating outside of the home is a treat, you don't need to eat healthily*

In contrast to their views of eating within the home, families viewed eating outside of the home as a treat and, therefore, allowed their children to eat whatever they wanted, regardless of the health benefits. This often meant families ate unhealthy restaurant food or "*naughty takeout" (Parent-14)* meals; "*The whole point of going out is to be bad, so you might as well go for the whole hog." (Parent-4).*

Despite families' beliefs about the importance of eating healthy home cooked meals; this did not seem to be emulated when eating outside of the home; as parents reported they specifically ate foods they would normally avoid preparing at home.

> *"We just order what we like, like we usually don't get at home…we don't have any limitation on that…It doesn't matter if it's healthy or not healthy…If they want to have chips, they can have chips. They can have fried food. It doesn't matter…we don't look if it's healthy or not...If we like it, if the kids love it, that's fine." (Parent-15)*

Furthermore, families used unhealthy restaurant or takeaway meals as a reward for their healthy eating within the home, and therefore children were aware "*having takeaway means you can have whatever you want" (Parent-8);* in doing so it was perceived as acceptable to eat unhealthily. Some parents felt treating their family to unhealthy restaurant or takeaway meals was acceptable because they did not do this frequently.

> *"I think, for me, because we have a takeaway as a treat, and it's not an everyday or-- it's not even every week occurrence, then for me, there's no point in having a healthy option really" (Parent-3)*

Parental attitudes towards eating outside of the home were motivated due to a desire to have a positive experience, and parents were keen to emphasise that *"If I'm going to a restaurant, I want to go have a good time (Parent-14).* As part of this positive experience children were allowed to choose their own meals from the menu, regardless of the food's health and nutritional value.

> *"If the children want ice cream and two meals, that's fine. We will provide this for them." (Parent-15)*

*COM-B summary: Eating healthily is important, but eating outside of the home is a treat.*

All elements of the COM-B framework, except for physical capability, were evident in this theme, but automatic and reflective motivation dominated. Parental motivation to eat healthily within the home was high, predominantly due to the desire to ensure the health of their children. Parental motivation was influenced by their knowledge of the potential health consequences of a poor diet, as well as their own childhood experiences of healthy eating. Despite parental motivation to eat healthily within the home, parents found it challenging to provide healthy meals due to children's fussy eating. Automatic and reflective motivation dominated food purchasing outside of the home. Eating outside of the home was perceived by families as a special occasion or treat, with the focus on taste and enjoyment for all,

encouraging families to indulge in highly energy dense foods, with little consideration of the nutritional or health benefits of the foods consumed.

### 3.3. Barriers and Facilitators at each Ecological Level.

See Table S1, and Figure 1a and 1b, which examined the barriers and facilitators of healthy food purchasing in families by COM-B framework and ecological level. Community level and cultural level factors are presented together in the Figures because of the scarcity of these influences in parents' discourse.

In summary, most barriers to healthy food purchasing were perceived to be at a family/household level or community/cultural level, with a small number of individual barriers also identified. In contrast, parents' discussion of facilitators of healthy food purchasing were dominated by individual level factors. In terms of COM-B domains, there was very little reference to *physical capability* except that parents viewed their individual cooking skills as facilitators of healthy eating. In contrast, the concept of individual *psychological capability*, including the role of knowledge, decision processes, behavioural regulation, and generation of problem-solving strategies, was critical for facilitating healthy food purchasing decisions. Parents also discussed psychological capability at a family/household level in terms of strategic decision making about healthy food purchasing for the whole family. *Reflective motivation* was key in both family/household level barriers and individual facilitators of healthy food purchasing. Caregiver identity, beliefs about their own capabilities and the consequences of healthy eating, health goals and intentions, childhood memories and social norms were regularly mentioned as facilitators of healthier eating, but many parents also had clear intentions of enjoyment and active goals to make less healthy, more indulgent decisions about food purchases eating outside of the home and these processes typically occurred at a family/household level. This linked clearly to *automatic motivation*, (for example, taste and enjoyment, desires, and dislikes) which featured at both the individual (parents' own preferences) and family/household level (satisfying children's likes and dislikes, using palatable food as rewards) as a key barrier to making healthier food purchases. However, the role of *automatic motivation* in facilitation of healthy eating was also apparent: the rewarding nature of feeding, cooking, and eating, or experiencing guilt if children have not eaten healthily facilitated the purchase and provision of healthier foods.

The impact of *physical opportunity* on healthy eating was also evident, with frequent reference to time and cost at the family level, and local availability of healthy and/or halal foods at the community/culture level as barriers to healthy food purchasing. Physical opportunity in terms of growing their own vegetables and managing the household food environment were described as important family/household level facilitators of healthy food intake, and at a community level, opportunity to purchase from multiple retailers to maximise healthier food choice within limited budgets was discussed. Finally, *Social opportunity* was described both as a barrier and facilitator at family/household level and community/culture levels. At the community/culture level, parents reported that social support for healthy eating outside of home was important and it was key to learn from others about ways to solve the challenges faced in making healthy family food purchasing decisions, but social occasions and other children's food preferences were common barriers to healthy food purchases. At the family/household level, parents reported that children's food preferences impacted significantly on parents' family food purchases but that eating together, communication and modelling of healthy eating were key facilitators of healthier food purchase and consumption.

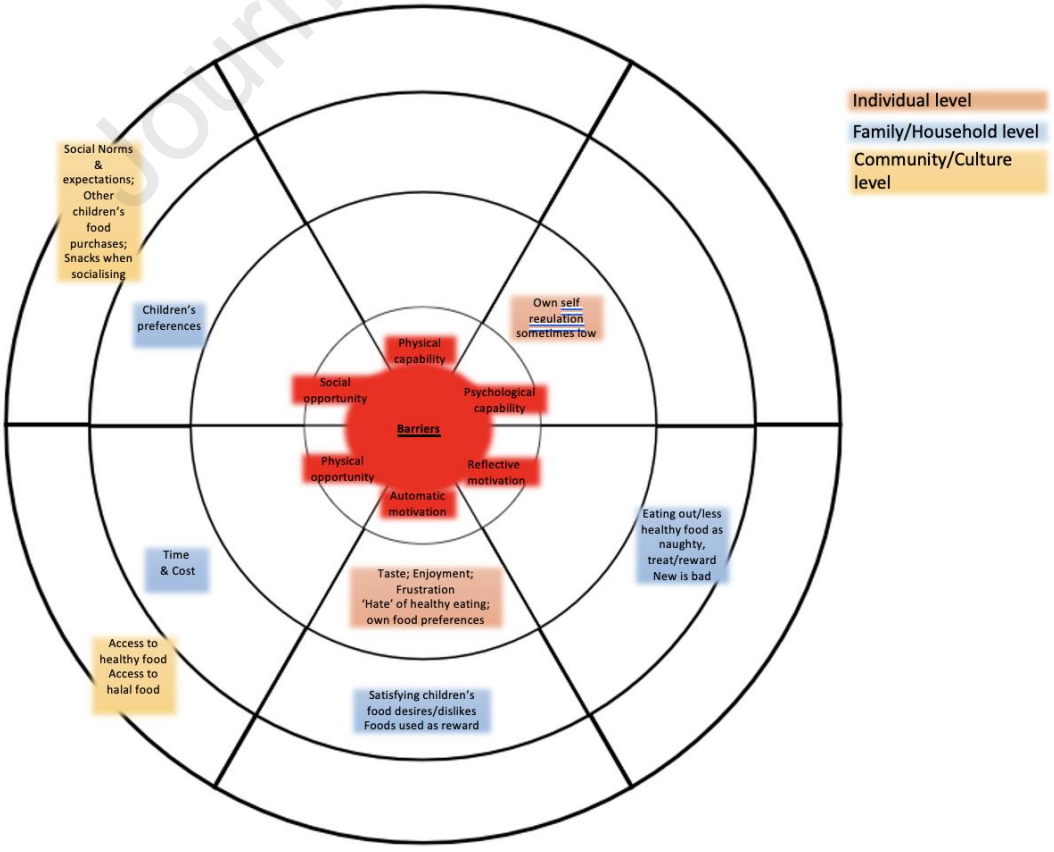

Figure 1a. Barriers to healthy food purchasing in families: a Capability (physical and psychological) Opportunity (Social and Physical) and Motivation (automatic and reflective) analysis mapped by Individual, Family/Household and Community/Cultural Ecological levels.

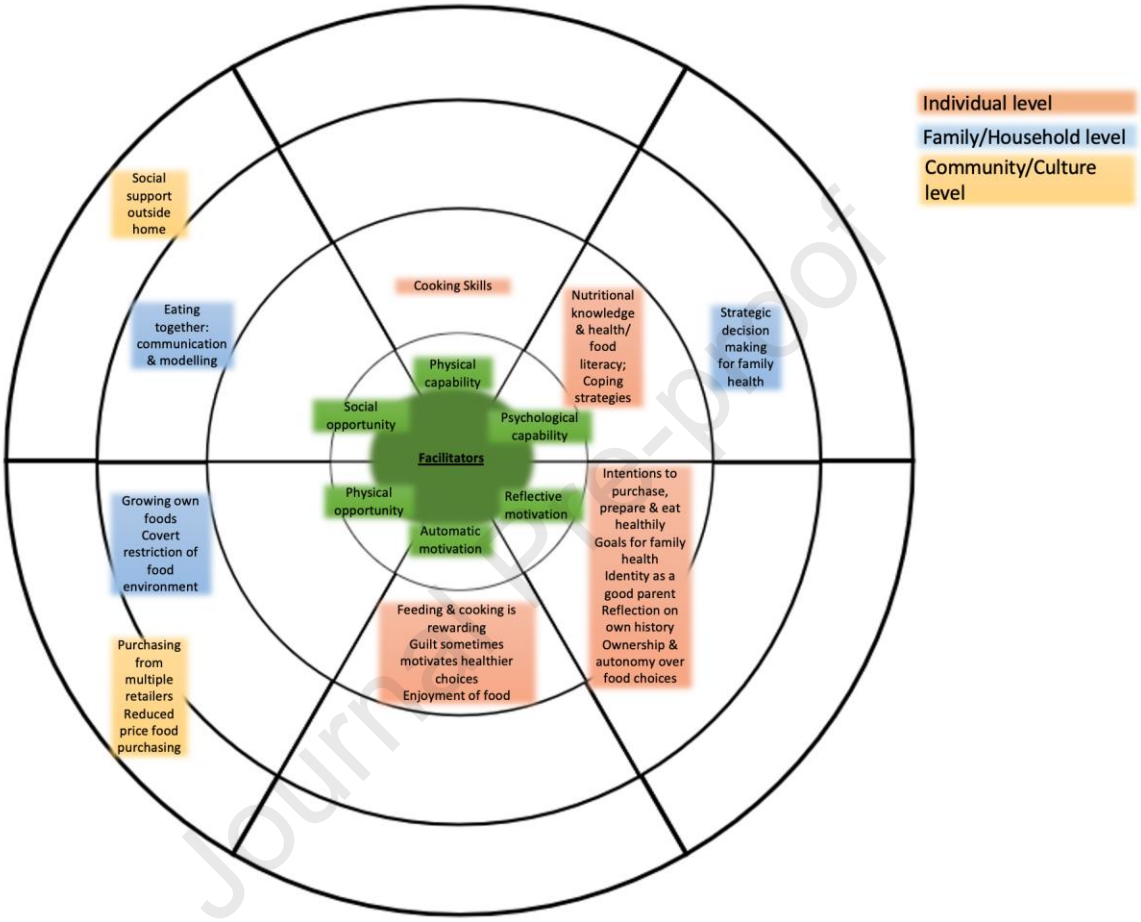


Figure 1b. Facilitators of healthy food purchasing in families: a Capability (physical and psychological) Opportunity (Social and Physical) and Motivation (automatic and reflective) analysis mapped by Individual, Family/Household and Community/Cultural Ecological levels.

## 4. Discussion

To understand parents' food purchasing decisions for their children, this study explored the barriers and facilitators of healthy family food purchasing decisions by examining parents' *capability*, *opportunities*, and *motivations* and identified the ecological levels at which these barriers and facilitators were experienced. In summary, parents in a low SES area of

584 Birmingham felt confident that they knew how to eat healthily, however many families
585 experienced barriers to doing so, including financial and practical barriers, but also those
586 related to children's food preferences, which made food purchasing decisions complex.
587 Social factors such as observing what and where others were eating were also important
588 influences on parents' decision making. When it came to eating outside of the home, families
589 reported a lack of motivation to eat healthily, as the experience was viewed as a treat. The use
590 of complex strategies to maximise the healthfulness of food purchases whilst at the same time
591 balancing multiple other demands highlighted the cognitive and emotional demands of family
592 food purchase decision-making.
593
594 In terms of the ecological levels at which parents reported barriers and facilitators of healthy
595 food purchasing, whilst some local community (e.g. social support, access to cheap and
596 healthy food shops) or broader cultural/social effects were discussed (e.g. challenges of
597 accessing cheap, healthy and/or halal foods) by parents, the predominant factors reported
598 were typically at the individual or household/family level. Barriers to healthy food
599 purchasing were identified predominantly at the family/household level and
600 community/cultural level. Perceived facilitators of healthy food purchasing were dominated
601 by individual level factors. The boundaries between levels, particularly between individual
602 and family levels of influence, were relatively fluid (for example, the concept of eating out as
603 a treat which does not need to be healthy, was placed at a family/household level, but also
604 had clear individual level influence too). Nonetheless, this study has highlighted additional
605 targets to encourage healthier food purchasing as well as guiding the ecological levels at
606 which interventions may be targeted.
607
608 Examination of parents' family food purchasing behaviour through the COM-B lens provided
609 a useful insight into the underpinnings of the behaviour as well as identifying targets for
610 intervention. Parents typically considered their physical capability (e.g. cooking skills) and
611 psychological capability (e.g. knowledge, problem solving) as strong, and as facilitators of
612 healthy food purchasing. These findings also suggest that policies or programmes focussed
613 on improving parental physical or psychological capability to make healthy food purchases
614 would be misplaced in this knowledgeable, skilled and relatively health-literate community.
615 A focus on the development of nutrition education or cooking skills is unlikely to facilitate
616 improvement in healthy food purchasing in this group. This aligns with other work which has

suggested that parents need support to develop strategies to deal with practical barriers to the provision of healthy foods to their families, such as meeting multiple family needs, time constraints and food resource management, rather than interventions focused on nutrition education or cooking skills[15].

Whilst improvements in physical opportunity (for example, time, cost and local availability) and positive social opportunity show clear potential to influence family food purchases, it was in the domain of motivation that most behavioural levers were apparent. Reflective motivation, including parental goals and intentions were important, but automatic motivation was a key feature underpinning parents' food purchasing. Emotions about food (e.g. hatred of certain foods or of healthy eating) and use of food as a reward were regularly mentioned. This reflects quantitative analysis of food purchasing motivations in French parents during COVID-19 lockdown, which demonstrated significant increases in motivation for purchasing pleasurable foods as well as the use of more child-centred, pleasure-oriented feeding practices[27]. There were also clear links between reflective and automatic motivation: parents placed significant emphasis on enjoyment, avoidance of conflict, and desire to eat, reflecting other work which has documented the importance of family satisfaction and enjoyment of food in determining what will be purchased[28]. In turn, this emphasis on pleasure had a substantial impact on their purchasing of healthy foods, and particularly on purchasing vegetables. High levels of vegetable availability in the home in conditions of economic hardship is protected in families who eat together regularly[29,] so strategies which promote enjoyment and reduce mealtime conflict may be necessary to promote vegetable purchasing for home consumption.

Children's food preference has repeatedly been identified as a primary barrier to purchasing healthy food and making changes to family healthy eating[12,17], and drives food choices when selecting from menus[30]. It is well established that children who show greater fussy eating have a narrower dietary range, particularly accepting fewer healthy foods[31]. Greater selectivity is, in part, due to less familiarity with and exposure to those foods, and this selectivity influences parental purchasing of foods[32], creating a vicious circle of lower exposure to, and acceptance of, healthy food. In contrast, children who are involved in shopping and meal preparation show lower levels of fussy eating[33] perhaps due to the increased exposure to a variety of foods. Indeed, repeated exposure and sensory learning

programmes for children show improvements in food acceptance and reductions in fussiness[34]. Provision of such opportunities for families with young children in community settings, with a focus on enjoyment and modelling, may ultimately help to reduce the barrier of children's food preferences and facilitate healthy food purchasing. However, public health campaigns have tended to address knowledge about what is healthy (e.g. 5-a-day[35]) rather than how to promote children's willingness to consume more healthy foods.

Of particular interest in this study was the contrast between decision-making regarding purchasing of foods for consumption in versus outside of home: healthy eating was perceived as important, but eating outside of the home was perceived as a treat. Goals for eating out of the home were often about positive taste and social experiences, with the focus on indulgence not healthy eating. This finding aligns with quantitative work which showed that most parents ate out of home for pleasure or as a treat, with children's preferences being a primary driver of food choice in out of home contexts[30]. The concept of 'healthy' takeaway food was not common, and this kind of food was positively framed as an indulgence, with food enjoyment being more important than health or price. This finding aligns with prior work highlighting the difficult balance between parent's strong motivations to make choices in the interest of child health versus meeting family members' food preferences[13]. Acknowledgement of the differences in motivations for food purchases in and outside of home are key to understanding how to promote behaviour change within each specific context. Whilst parents report that they prefer healthier options to be available for their children on menus, highlighting healthy options in out of home contexts has limited impact on food choice in comparison to children's taste preferences[30]. Given that public health policies designed to promote healthier food purchasing that are solely based on information provision about food content show negligible effects[36] and that nutrition labelling is significantly less effective in unrestricted eating contexts[37], these findings raise the possibility that in a restaurant setting, which is perceived as a 'one off' treat, labelling food as healthy, or as lower calorie, may be less powerful than similar information presented within a supermarket setting where parents are making day to day decisions about overall diet. Experimental work has demonstrated that emphasising the delicious taste of foods, rather than their healthiness, increases people's choice, and perceived palatability, of nutritious food (e.g., vegetables)[38], so emphasis on taste and enjoyment may be a more powerful lever than health in promoting food purchases for

consumption outside the home. Thus, a focus on enjoyment, combined with 'health by stealth' methods[39], may be more effective.

Furthermore, in addition to the direct influence of motivation on food purchasing decisions, in many cases, issues of capability or opportunity were in turn related to motivation by parents. For example, parents' knowledge of health consequences and their own childhood experiences (psychological capability) underpinned their health goals and intentions for their children (reflective motivation). Barriers related to physical opportunity led to impact on automatic motivation through frustration, and social opportunities were linked to the experience of pleasure and, sometimes, frustration: liking and enjoyment were perceived as key to the enablement of social opportunity of eating together as a family or social group. Observation of other people's enjoyment of eating is a potentially powerful lever that could be applied to promotion of healthy consumption[40]. Whilst some of the shared recommendations and practices, such as concealing previously disliked food in other foods, and using less healthy foods as rewards for consuming healthy foods, are inadvisable, the fact that parents sought out and trust each other's advice opens an opportunity for peer support as a method of delivering intervention and support programs. Building social norms focused on feeding practices that promote autonomy and food environments that promote healthy choices may be a powerful lever for change. One good example of this was the act of eating together: the social aspects of sitting down to eat a meal together appeared to benefit the family on an emotional level and allowed children to view their parents' healthy eating as normal eating behaviour, providing potentially powerful opportunities for modelling, known to have a positive influence on children's healthy food intake[41].

Before choosing what food to purchase, parents considered multiple, often competing factors, which aligns with prior work with UK families experiencing food insecurity[11] as well as parents of young children in New Zealand, for whom practical factors often dominated nutritional ones in terms of food purchasing decisions[42]. Cost (including value for money) and accessibility have been identified by many previous studies as primary determinants of food purchasing decisions[13,43]. Parents' desires to provide healthy food for their families, alongside perceptions of healthy food as less enjoyable and eating out as a rewarding indulgence, created a conflict which has previously been discussed in terms of the complex interactions between taste and social class, but also in interaction with gender, age, ethnicity

715 and religion and household structure[44] . For example, food choices as necessity versus luxury
716 has long been identified in the sociological literature with social class influencing food
717 choices[45]. The idea of some foods as necessity (eaten for health) and some as luxury (eaten
718 for enjoyment) were clearly articulated by our participants as a dichotomous choice; rarely
719 were foods described as both healthy and enjoyable. However, perhaps because of the
720 homogeneity of our sample, aside from finances, social class was not mentioned or observed
721 as a factor in food purchasing decisions. Similarly, gender and parenting roles were not raised
722 as important determinants of food purchasing decisions by our participants, even though most
723 parents who volunteered were mothers. Nonetheless, religion, linked to ethnicity, was a
724 strong predictor of challenges to healthy food purchasing, because of perceived barriers to
725 accessing healthy halal foods. There is very little examination of the effects of limited access
726 to halal foods on healthy food purchasing, or how this may affect family dietary health. This
727 study is the first to identify that access to healthy halal food, particularly outside the home,
728 had a clear influence on decisions made by Muslim parents in the UK about what to purchase
729 for their children.
730
731 *Summary of implications for health promotion*
732 There is obvious potential for radical improvement in the quality of children's diets through
733 changing family food purchasing via fiscal policy (such as improvements in benefits to low-
734 income families, or subsidies on healthy foods). In addition, targeting both reflective and
735 automatic motivation, at both the individual and family level, may provide a fruitful avenue
736 for behaviour change. Parents expressed their desire for their children to eat healthily,
737 concerns about their healthy children developing diet-related health complications, and saw
738 the provision of healthy food as part of their 'good parent' identity. Promotion of these
739 facilitators, including creating a sense of autonomy in food choices, maximising food
740 enjoyment and the rewarding nature of cooking and eating together, may be a positive focus
741 for policy and practice. Social and physical opportunities for healthy food purchasing were
742 also important, at both the family/household and community level; unsurprisingly, many
743 families saw time, cost and poor access to healthy (and/or halal) foods as a significant barrier
744 to healthy food purchases. However, facilitating social opportunities for purchasing and
745 eating healthy foods together, particularly for exposure to other children eating healthy foods,
746 may be useful to investigate. There was a strong message from parents that foods purchased
747 for eating outside the home need not (and perhaps should not) be framed as 'healthy', which

748 may reduce their desirability. In this context, policies, businesses and the services that
749 support them, who are aiming to encourage parents' purchasing behaviour of their healthy
750 food, will need to consider how to emphasise enjoyment, palatability, and value for money.
751
752 **4.1. Strengths, limitations and future research opportunities**
753 There were several strengths to this study. Recruitment of a sample with relatively low
754 socioeconomic status with a high proportion of people from minority ethnicities yielded insight
755 into food purchasing decision making by families identified by other work to be most
756 vulnerable to poor dietary quality. Our novel approach of integrating the COM-B model
757 alongside an ecological level analysis, meant that not only do we understand the barriers and
758 facilitators of healthy food purchasing of our sample in terms of the specific psychological
759 social and physical contributors to behaviour change, but we also understand whether
760 interventions should be targeted at a community/household or individual level. However, there
761 were also some limitations of this work. Firstly, there was a clear capability and motivation to
762 eat healthily within the sample. Families often aimed to overcome barriers to healthy eating
763 that they had identified within their daily life. Participating in research of this kind could be
764 more likely to appeal to families who already practice and value healthy eating, rather than
765 those who do not, perhaps due to a fear of being judged. In addition to potential influence on
766 participation, fear of criticism may have impacted participants' interview answers; parents may
767 have been more inclined to provide socially acceptable answers, and/or answers that they
768 believed the interviewer wanted to hear. Even though researchers made it clear that participants
769 would not be judged or criticised for their family food purchases, we do not know whether the
770 responses provided by our participants are truly reflective of their day-to-day experiences.
771 Further work using experience sampling methods, which capture 'in the moment' decision
772 making, may be a useful next step to examine the contexts, emotions and cognitions which
773 predict family food purchases decisions.
774
775 Most of the sample followed a halal diet; these families provided a detailed insight into the
776 complexity of food purchasing decisions based on their dietary requirements. There is little
777 literature examining how the need for halal foods impacts the decisions families make about
778 what, where and when to buy and consume foods. Whilst this study provides an insight into
779 these decisions for a small number of families within this community in Birmingham, UK,
780 there is much capacity for further work in this area which may help to better tailor culturally

appropriate policy and practice. Further work examining similar concepts across different socio-cultural groups would be needed to conclude whether the themes identified within this study are relevant to other social groups.

A primary limitation of this work was that all interviews occurred during the COVID-19 pandemic. Notably, at the time of data collection, COVID-19 restrictions were easing in the UK, children had returned to school, but indoor restaurants were still closed. While families were asked to think about their food choices prior to COVID-19 restrictions, it might be beneficial for future research to explore families' food purchasing decisions in the absence of such restrictions. Similarly, interviews were conducted during term time when most children could attend lessons at school. There is a growing body of literature showing that school holidays are particularly high-risk times for food insecurity and 'holiday hunger' in children[11]. Exploration of family food purchasing decisions specifically during school holidays may show different patterns of capability, opportunity and motivation that determine purchases at this time.

In summary, this study demonstrated that broadly, families in a lower SES urban area of the UK had a good standard of knowledge and skills regarding healthy eating and cooking. Thus, individual parental 'capability' is not likely to be a key intervention target to improve healthy food purchasing in this group. As expected from prior research, there were several 'opportunity' barriers to healthy food purchasing in terms of cost, lack of time for cooking, locations of stores, markets, cafes and restaurants, access to transport and other common barriers. Healthy food was not always perceived to be good value for money when eating outside of the home. However, social opportunities of family meals were recognised and offered opportunity for social bonding and modelling of healthy eating. There is a clear need for future interventions to be developed to assist families in reducing the perceived barriers to healthy food purchasing. As suggested by participants in this research, whilst educational and financial support could be useful to promote healthy eating, the primary focus in terms of planning a sustainable healthy food economy should be on motivational aspects of food purchasing. Individual and family enjoyment was key to determining whether and what parents would purchase for consumption of food outside the home. Thus, emphasis on enjoyment, indulgence, and social bonding, whilst consuming healthier foods that offer good value for money, may be key to increasing parental motivation to purchase healthy foods.

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# Supplementary file 1:
# Aston BCC PH East Birmingham Family Food purchasing project

**Interview Schedule Key**

1. Key question
   - Possible follow up question
     - Possible prompt

## Interview schedule

Warm up items

1. Can you tell me about what your family like to eat?
   - What don't they like to eat?

2. How would you describe healthy eating?
   - What types of food do you think of when you think of healthy eating?
   - What types of food do you think of when you think of unhealthy eating

'We are really interested in how families and parents make decisions about what food to buy. We are interested about food choices you make for your family in shops and markets, but also when and if, you choose to buy food for your children to eat outside of home, e.g. in cafes, or from takeaways etc. We know all our eating habits have changed since the COVID-19 pandemic but today the questions we are asking refer to when shops and food providers are open and functioning normally, without COVID-19 restrictions."

1. Can you tell me who makes most of the decisions in your family about what to buy in a shop, market or supermarket?
   - Why does this person make the decisions?

2. Thinking about the food you buy to eat for your children <u>at home</u>, what do you think about when deciding what foods to buy in a shop or market?

   - What things make you **more likely** to buy healthy food from a shop or market for your children to eat at home?

   - What things make you **less likely** to buy healthy food from a shop or market for your children to eat at home?

     - How does the cost of food impact your decisions?
     - How does the health benefit of foods impact your decisions?
     - How does the convenience of foods impact your decision?
     - How does your knowledge/skills in food preparation/cooking impact your decision?
     - How does your family's preference for foods (e.g. children/parents/extended family) impact your decision?

- Are there any religious or cultural significance that impact your decisions?

3. Where else do you buy food that your children eat?
(if to eat at home, repeat q above, if not to eat at home, i.e. eat out or as a snack outside home, ask below).

3.1. Still thinking about the food that you buy to eat with/for your children outside of home, what do you think about when buying food outside home?

- What makes you **more likely** to buy healthy food outside of your home?

- What makes you **less likely** to buy healthy food outside of your home?

  - How does the cost of food impact your decisions?
  - How does the health benefit of foods impact your decisions?
  - How does the convenience of foods impact your decision?
  - How does your knowledge/skills in food preparation/cooking impact your decision?
  - How does your family's preference for foods (e.g. children/parents/extended family) impact your decision?
  - Are there any religious or cultural significance that impact your decisions?

4. If there was a shop, café, restaurant, takeaway or market selling healthy food near your home, what would make you **more likely** to buy healthy food from there?

- What would make you **less likely** to buy healthy food from there?

  - How does the cost of food impact your decisions?
  - How does the health benefit of foods impact your decisions?
  - How does the convenience of foods impact your decision?
  - How does your knowledge/skills in food preparation/cooking impact your decision?
  - How does your family's preference for foods (e.g. children/parents/extended family) impact your decision?
  - Are there any religious or cultural significance that impact your decisions?

5. Is there anything else that **stops you** from buying more healthy food, or makes it harder to buy healthy food for your children and family?

- How do you think you could overcome this barrier?

- Do you feel you have the opportunity to buy healthy foods?

  - How does the cost of foods limit you from buying healthy foods?

- Do you feel it is convenient to buy healthy foods?
- How does your knowledge/skills in food preparation/cooking limit you from buying healthy foods?
- How does your family's preference for foods (e.g. children/parents/extended family) limit you from buying healthy foods?
- Are there any religious or cultural significance that limit you from buying healthy foods?

6. Is there anything else that **currently helps** you to buy healthy food for your children and family?

- How does this help you?

- What motivates you to buy healthy food for your children and family?

  - How does the cost of food help you?
  - How does the health benefit of foods help you?
  - How does the convenience of foods help you?
  - How does your knowledge/skills in food preparation/cooking help you?
  - How does your family's preference for foods (e.g. children/parents/extended family) help you?
  - Are there any religious or cultural significance that help you?

7. What **would help you in the future** to buy healthy food for your children and family?

- Why would this be helpful?

- Has anything helped you in the past?

  - How would the cost of food help you?
  - How would the health benefits of foods help you?
  - How would the convenience of foods help you?
  - Would developing your food preparation/cooking skills help you?
  - How would changes to your family's preference for foods (e.g. children/parents/extended family) help you?
  - How could this help be offered to you?

8. Is there anything else you would like to add?

1108 Table 1: Example quotes representing each theme and subtheme

| Theme | Subtheme | *Quote* |
|---|---|---|
| **I know how to provide healthy meals for my family** | n/a | *"fruits. And salad, cucumber, tomatoes, just those things." (Parent-13)* |
| | | *"Fish is quite healthy… The red meats, carbohydrates, stuff like that. Fibre for their health. They have to eat fruit for the fibre…. And to take things like vitamins and things into consideration." (Parent-7)* |
| **Family food purchase decisions are complex** | Purchasing food is complex | *"I would like to buy a lot of UK-grown produce. I don't want to buy things that have come from Spain. I mean, I saw spinach the other day somewhere, and it was UK spinach, and then somewhere else, I saw spinach from Spain, and I thought, "Why do we have spinach from Spain?" I mean, because it's from-- so God knows what the taste would be like if it's travelled all the way here." (Parent-8)* |
| | | *"So if I knew you could buy an apple from this new shop for 50p where I could buy a bag of apples from Aldi for 50p, I'm more likely to use Aldi because it just makes sense. At the end of the day, it's an apple. I don't know what's going into the background of them pesticides and things and how it's grown, but all I see is what I've got in front of me. It's an apple." (Parent-2)* |
| | The use of problem-solving | *"I have got that time to shop around and I'm okay at the moment because I've got the energy to do it. I've got the time to do it. I've got the car to do it. I think maybe later on in life I'd prefer the one shop [laughter]. When I haven't got the energy to shop around and walk around or anything. But at the moment, I don't mind it because it keeps me busy, so I don't mind….So I go to quite a few different places for different food stuff as well. Only because I can, because I drive. I think if I didn't drive, then it would be really different. So I've got that luxury where I can." (Parent-9)* |
| **I want what they are eating** | n/a | *"If my daughter, she messages her cousin, she'll tell her that it's takeaway day and she's having such-and-such for tea tonight. Then, she will definitely be like, "Well, she's having this and this, so I want this and this." (Parent-8)* |
| | | *"You enjoy snacks more as well when you're with somebody and you talk, and walk, and eat" (Parent-9)* |
| **Healthy eating is important, but eating outside of the home is a treat** | I want to look after my family | *"I think when it comes to food, it should be cooked from home and every option should be thrown at the children. From the beginning, we've had that; throw as much variety, different kind of bits for them to pick up the taste and that's what I've done since they've been babies and it still lingers on." (Parent-16)* |
| | | *"My husband's been told he's got high cholesterol, we started to make small changes in our diet, so we've changed our oil to a rapeseed oil. All our bread is all brown or 50/50" (Parent-1)* |
| | Parental frustrations over a child's fussy eating | *"I mean, there's some foods that I suppose I've never tried. So I'm not encouraging the kids to try" (Parent-2)* |
| | Eating outside of the home is a treat, you don't need to eat healthily | *"With me, it doesn't make a difference because-- if it's healthy or not because that's an indulgence anyway, ordering from a takeaway. So it wouldn't matter if it was healthy or not. We'd just order what we want, do you get me?" (Parent-9)* |
| | | *"To tell you the truth, we don't really think about anything because it's their treat. The menu is in front of them, so we ask them, "What would you like?" And they take it from there. So it's up to them, whatever they'd like to order" (Parent-16)* |

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| Supplementary Table 1. COM-B Thematic Coding frame. | | | |
|---|---|---|---|
| **Themes** | **COM-B** | **Inside/ outside of the home** | **Framework code** |
| I know how to provide healthy meals for my family | **Psychological Capability** | Inside | Good understanding of the benefits of healthy eating |
| | | | Poor understanding of the benefits of healthy eating |
| | | Outside | Good understanding of the benefits of healthy eating |
| | | | Poor understanding of the benefits of healthy eating |
| | **Physical Capability** | Inside | Good ability to effectively cook healthy foods |
| | **Physical Opportunity** | Inside | Does have the time to cook healthy foods |
| | | Outside | Does not have easy access to healthy foods |
| | | | Take away's/meals out purchased due to a lack of time to prepare a meal at home |
| | **Social Opportunity** | Inside | Eating a healthy meal allows families to eat together |
| | **Reflective Motivation** | Inside | Belief that eating healthy is a good thing |
| | | | Belief healthy eating involves eating a balanced diet |
| | **Automatic Motivation** | Inside | Need to eat healthy to keep family members healthy |
| Family food purchase decisions are complex | **Psychological Capability** | Inside | Good understanding of where to purchase healthy foods |
| | | | Ability to use a shopping list* Not included in analysis |

| | | | |
|---|---|---|---|
| | **Physical Opportunity** | Inside | Does not have the time to cook healthy foods |
| | | | Does not have the financial resources to purchase healthy foods |
| | | | Does have the financial resources to purchase healthy foods |
| | | | Does have access to good quality foods |
| | | | Does have easy access to healthy foods |
| | | | Does not have easy access to healthy foods |
| | | | Does have easy access to healthy foods that meet dietary requirements |
| | | | Does not have easy access to healthy foods that meet dietary requirements |
| | | | Families should be supported financially to purchase healthy foods |
| | | Outside | Does have the financial resources to purchase healthy foods |
| | | | Does not have the financial resources to purchase healthy foods |
| | | | Take aways/meals out purchased due to a lack of time to prepare a meal at home |
| | | | Does have access to good quality foods |
| | | | Does have easy access to healthy foods |
| | | | Does not have easy access to healthy foods |
| | | | Does have easy access to healthy foods that meet dietary requirements |
| | | | Does not have easy access to healthy foods that meet dietary requirements |
| | **Social Opportunity** | Inside | Receives social support about healthy eating |
| | | | Needs more social support to eat healthily |
| | **Automatic Motivation** | Inside | Need to eat healthy to keep family members healthy |

| | | | |
|---|---|---|---|
| I want what they are eating | **Social Opportunity** | Inside | Receives social support about healthy eating |
| | | | Parental modelling of eating behaviour |
| | | Outside | Social influences on food purchases |
| | **Automatic Motivation** | Outside | Parental food preferences influence food purchases |
| | | | Child food preferences influence food purchases |
| Healthy eating is important, but eating outside of the home is a treat | **Psychological Capability** | Inside | Good understanding of the benefits of healthy eating |
| | | Outside | Good understanding of the benefits of healthy eating |
| | | | Poor understanding of the benefits of healthy eating |
| | **Physical Capability** | Inside | Good ability to grow own fruits and vegetables |
| | | | Good ability to effectively cook healthy foods |
| | **Physical Opportunity** | Inside | Parental restriction of some foods |
| | | | Does have access to good quality foods |
| | | | Does have easy access to healthy foods |
| | | Outside | Parental restriction of some foods |
| | | | Does have access to good quality foods |
| | **Social Opportunity** | Inside | Parental modelling of eating behaviour |
| | **Reflective Motivation** | Inside | Belief that eating healthy is a good thing |
| | | | Belief healthy eating involves eating a balanced diet |
| | | | Lack of motivation to eat healthy |

| | | | |
|---|---|---|---|
| | | Outside | Belief there is no need to eat healthy outside of the home |
| | **Automatic Motivation** | Inside | Parental food preferences influence food purchases |
| | | | Child food preferences influence food purchases |
| | | | Need to eat healthy to keep family members healthy |
| | | | Need to eat healthy to keep food purchaser healthy |
| | | Outside of the home | Parental food preferences influence food purchases |
| | | | Child food preferences influence food purchases |
| | | | No need to eat healthy to keep family members healthy |
| | | | No need to eat healthy to keep food purchaser healthy |

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Understanding family food purchasing behaviour of low-income urban UK families: an analysis of parent capability, opportunity and motivation.

This study was conducted according to the guidelines laid down in the Declaration of Helsinki and all procedures involving research study participants were approved by the Health and Life Sciences Ethics Committee at Aston University (#1748).

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**Conflict of Interest**

The authors have no conflicts of interest to declare.