

Exploring young child feeding practices & perceptions in Tower Hamlets, with a focus on sugar

Regina S. Keith, Claudia Baker, Lauren Senior, Amanda Rodrigues Amorim Adegbeye

University of Westminster Food, Nutrition and Public Health Division

Address for correspondence:

Dr. Regina Keith (r.keith@westminster.ac.uk)
University of Westminster
115 New Cavendish Street London W1W 6UW

Authors' note: This research was commissioned by London Borough of Tower Hamlets Public Health Division (THPH) and Tower Hamlets Together (THT). The study was carried out by the Food, Nutrition and Public Health Division of the University of Westminster in 2017. The aim of the research was to gain a greater understanding of young child feeding perceptions and practices, in Tower Hamlets. This information was used to feed into policy and programming practices in the borough.

Acknowledgements: The research team (Regina Keith (PI), Lauren Senior, Elizabeth Ujah Mbah and Jolene Nyako and the MSc students (Abigail Caleb, Claudia Baker, Xiaolin Li, Faduma Shariff, Nazma Rahman and Suad Mohammed) would like to thank all participants in Tower Hamlets for taking part in the research. Special thanks to all the key informants who helped to arrange the focus group discussions and who attended the reflection action workshop on June 9th. Thanks to the University of Westminster steering group (Dr. Alison Draper, Dr. Amanda Adegbeye, Dr. Rumy Begum, Jessica Swann), the Tower Hamlets Public Health team (Aditi Mondkar, Desmond Wright, Simon Twite and Esther TrenchardMabere) and Tower Hamlets Together (Owen Amadasun.)

Submitted: 11/18/2019

Accepted: 03/01/2022

ABSTRACT

Introduction: The aim of this qualitative research was to gain a greater understanding of the factors that influence young child feeding perceptions and practices in families with children under the age of five years old in London Borough of Tower Hamlets, in the context of rising childhood obesity levels in England.

Methodology: The target group were mothers with children under five, mother in laws, service providers and carers. The participants were selected using purposeful, convenience and snowball sampling methods. Data were collected from 21 key informant interviews, 2 direct observations of health promotion sessions and 18 focus groups. The focus group discussions included 119 participants: 95 women who were mothers, 3 mother in laws and 21 service providers. A thematic analysis was used to identify four themes: knowledge not leading to changes, communication challenges, barriers to improving family healthy eating practices, and the lack of public health nutrition services.

Findings: *Knowledge had not led to behaviour change:* Participants demonstrated high levels of knowledge on what constitutes healthy eating such as increasing the amount of fruit and vegetables their children eat while reducing sugar, salt and fat intake. Information was sought mainly from the internet, friends and family, but participants would prefer a one-to-one session with a health worker.

Communication challenges: Misleading messages negatively affected food choices. Participants raised the problem of mixed messages regarding what was a healthy snack, as many food labels targeting young children carry misleading health claims such as “two of your five a day” or “organic,” despite having extremely high levels of sugar.

Barriers to improving family healthy eating practices: The challenges experienced when trying to improve their children’s eating habits included the cost of healthy food options, the lack of time to buy and prepare healthy options, unhealthy treats given by family and friends, and the unhealthy takeaway food environment.

Lack of public health nutrition services and support: There was a lack of clarity regarding who mothers and service providers should refer to regarding nutrition problems such as fussy eating, portion sizes, and diet diversity. Half of the early years’ service providers that were interviewed had no training on healthy eating guidelines, although training had been planned. Parents did not think the sugar tax would have a significant impact on the consumption of sugar or on childhood obesity levels.

Keywords: young child feeding, healthy eating barriers, childhood obesity, sugar taxes, nutrition, sugar, early year’s services, austerity

INTRODUCTION

Nutrition is a key component for the healthy growth and development of children. Globally one in three people are suffering from hidden hunger, or deficiencies in essential nutrients, such as iron or vitamin D (Black et al. 2013; GNR 2021). In 2012, the World Health Assembly established six global nutrition targets, to be achieved by 2025 (WHO 2012). Target four seeks to halt the rise in childhood obesity and countries also agreed to implement policies and programmes to reduce the consumption of sugar in diets as part of the voluntary targets to reduce non-communicable diseases (WHO 2014). To increase global political commitment towards achieving these targets, the United Nations Secretary General established the *Decade of Nutrition* to run from 2016 until 2025 (UN 2015). However, in 2016, 49% of countries had not collected enough nutrition data to enable their progress to be tracked effectively (WHA 2016). As part of the global effort to improve nutrition and health in young children, the UK established national nutrition targets to be achieved by 2030: these include reducing the levels of sugar in a range of foods consumed by children by 20%, reducing the calories in a range of foods consumed by children by 20% and increasing the amount of healthy food groups that children consumed (PHE 2019).

Sugar and health

Globally Public Health policy makers are increasingly concerned with the impact of the high consumption of sugar by children (Hawkes et al. 2017). Sugar consumption can lead to weight gain, sleep disturbances, behavioural challenges and an increase in the number of children developing type two diabetes. Sugar is found in three different forms: naturally occurring, added, and ‘free’ (WHO 2015). Naturally occurring sugar is found in fruit, vegetables or plain milk, added sugar is added to the product during manufacturing and ‘free’ sugar is naturally present in honey, syrups, fruit juices, and fruit concentrates (Newens & Walton 2015; WHO 2015). Worldwide, total sugar intake in children under-five ranges from 20%-38% of total energy intake, higher than the recommended 5% in revised WHO guidelines (Newens & Walton 2015).

In the UK, data from the 2016 National Diet and Nutrition Survey, found that children consume 13% of energy from added sugar (UK NDNS 2016). This includes sugar-sweetened beverages (SSBs), confectionery, and surgery snacks. Boulton et al. (2016) found that over 50% of all drinks marketed to children in the UK had more than 11.25 grams of sugars per 100ml, which is an indicator of ‘high’ according to UK traffic light labelling. Fruit juices, fruit drinks, and smoothies are also sources of high sugar intake, that parents often associate as a healthier option. From 158 juices labelled as ‘juice drinks’, 58% had 100% of a child’s maximum daily amount of sugar per serving. Park et al. (2014a) demonstrated that when sugar-sweetened beverages (SSBs) were consumed, at 10-12 months of age, there was a significant increase in the likelihood of dental caries for the child, at the age of six. Park et al. (2014) showed that consuming SSBs in infancy increased the likelihood of consuming SSBs at the age of six. Park et al. (2015) and Russell et al. (2016) both found that children were more likely to consume SSBs if their mothers allowed them to consume ‘junk food’, compared with mothers who set limits on how much ‘junk food’ they allowed their children to consume. In England, the largest source of sugar intake among children under 18, comes from SSBs (Public Health England 2015). Data show that children consume around 336 ml of SSBs a day, or 29% of their daily sugar intake (SACN 2015).

Food choice, fussy eaters, the role of parents, families and the environment

A 2007 UK-commissioned Foresight report (UK Government 2007) captured clearly the growing challenges of living within an obesogenic environment. As populations reduce their energy expenditure, the trend towards passive obesity increases. The report states that “*the evidence supports the concept of ‘passive obesity’ (where*

obesity is encouraged by wider environmental conditions) ... healthy lifestyles may be less available to those on low incomes... people do not 'choose' to be obese... obesity is mainly driven by a range of factors beyond their immediate control that in practice constrain individual choice. Strategies based on personal motivation and individual responsibility alone do not provide an adequate response to the obesity problem."

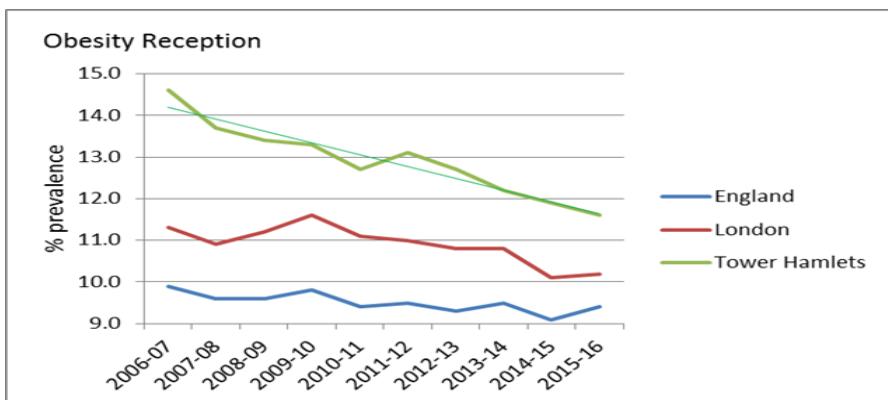
This is in line with approaches adopted by cities like Amsterdam in the Netherlands, where they have managed to reduce their childhood obesity rates by 2.5%, by a strategic decision to take a ten step, multisectoral approach to addressing nutrition in young people (Hawkes et al. 2017). Interventions implemented include only allowing water and milk at schools (this includes banning fruit juices), encouraging children to get more sleep, and restricting the fast-food industry's advertising of unhealthy food to children (Bosley 2016; Hawkes et al. 2017).

Scaglioni et al. (2008) suggested that parents play a critical role in the development of their child's food preferences by creating a food environment that can promote or prevent healthy eating behaviours. A systematic review of studies on fussy eating in young children found that there was a higher level of avoidance of vegetables than fruits (Food Foundation 2016). The review identified a connection between the foods the parents do not eat and the foods the child does not eat, particularly regarding fruits and vegetables. The Food Foundation (2016) found that among fussy eaters there was a higher quantity of sweets and confectionary consumed than amongst non-fussy eaters, but amongst their study target group, of four-year-olds, the amount of total energy consumed was similar. The Food Foundation (2021) later released evidence linking the importance of early childhood nutrition and preventing obesity in UK with large disparities between poorer populations and ethnic minority groups.

Overweight and obesity trends of children in the UK, London and Tower Hamlets Borough

The UK prevalence of overweight and obese children in 2014/15 was 21.9% for children aged 4 - 5 years old and 33.2% aged 10-11 years (NHS 2015). In the London Borough of Tower Hamlets, these figures were 22.5% and 41.9%, respectively in 2016, higher than the average for both London and England [See Figure 1.] (Public Health England 2016c). In 2016/17, 34% of children in year 6 (aged 10-11) in the UK were overweight or obese, rising to 39% in London and 43% in Tower Hamlets (LBTH 2017). The focus on early childhood development, healthy eating and breastfeeding are having an impact, as the rates of overweight five-year-olds in the borough are falling [See Figure 1.] (Public Health England 2016c) but the increase in weight between reception (first year of primary school in the UK) and year six is still a challenge (Food Foundation 2021).

Figure 1: Obesity trends in four and five-year-olds in England, London and Tower Hamlets from 2006 until 2016 (Source: Public Health England 2016c)



Public Health Interventions in England to address Sugar and Health

From 2009 until 2018, the UK government imposed extensive budget cuts as part of their austerity approach to addressing public spending deficits. These austerity measures resulted in a reduction in local government budgets by around 38%, which led to a dramatic reduction in local government spending on public health and nutrition services (Thomas 2019). Breslin (2019) estimated that during this time over 1000 child centres were closed which had provided essential health and nutrition services to families, especially in areas with high levels of deprivation. Noonan-Gunning et al. (2021) explored the capacity of the English public health nutrition services during COVID, discovering that austerity had left England with a system in crisis, not able to meet the need of the most vulnerable in society in relation to public health and nutrition services. Many community health programmes were cut and support to small community organisations also stopped. Public Health England focused on public health information campaigns and technical apps to support change such as the Change for Health campaign and the Sugar Smart app. These campaigns were supported by new policies to reduce childhood obesity through a Childhood Obesity Policy and a Sugar Tax introduced in 2018 (UK GOV 2018).

UK Sugar Tax

In the efforts to reduce sugar consumption among children in the UK, a Soft Drinks Industry Levy was implemented in April 2018 (UK GOV 2018). The levy increases the price manufacturers must pay for soft drinks with a total added sugar intake of 5 grams per 100 ml and a higher price increase for soft drinks with 8 grams or more per 100 ml. The levy is designed to push manufacturers to reformulate products or reduce portion sizes. However, it is up to the manufacturer if they pass the price increase along to consumers (Public Health England 2016b). The levy is not placed on drinks with naturally occurring sugars such as milk and 100% fruit juice or on any confectionery food products, no matter how high the sugar content. Children consume excess sugar in a variety of forms, such as from fruit juices, flavoured milk beverages, sweets, and biscuits. The levy does not affect any of these other products (Public Health England 2016b). *"The Soft Drinks Levy is one part of our plan to tackle childhood obesity. From Friday, soft drinks which contain too much added sugar will need to pay a fee. All revenues raised through the levy will directly fund new sports facilities in schools as well as healthy breakfast clubs, ensuring children lead healthier lives. We want to persuade manufacturers to reformulate their drinks and lower the sugar content (UK GOV 2018).* In a systematic review of the impact of taxing sugar sweetened beverages (SSBs) in middle income countries, Nakhimovsky et al. (2016) found that *"taxing SSBs will increase the prices of SSBs, especially sugary soda, in markets with few producers. Taxing SSBs will also reduce net energy intake by enough to prevent further growth in obesity prevalence, but not to reduce population weight permanently".* Exploring if the impact of these taxes had a greater impact on lower social economic populations, Backholer et al. (2016) found that the tax was generally regressive (with low-income households affected more) but to a small degree, while the weight loss was the same across all socio-economic groups in the population. Wright et al. (2017)'s research indicates that for the tax to promote changed practices, it should increase the price by 20%. As more countries adopt this strategy, lessons learned need to be shared and more downstream research done.

Aim of the research

The aim of the research was to understand the factors that influenced family's food choices and nutritional practices focusing on mothers with children under the age of five, child carers and service providers. The research

also reviewed the support, advice and key messages delivered by health workers and frontline staff working with parents and under five-year children. Service providers included nursery nurses, health visitors, public health advisers, family nurses, dentists, nursery school staff, voluntary sector staff and those supporting children with complex needs such as speech therapists and psychologists.

METHODOLOGY

This research was conducted by an independent research team from the University of Westminster, Food Nutrition and Public Health Division of the Faculty of Science and Technology. The research was commissioned by Tower Hamlets Public Health Team (TH PHT) as part of the Tower Hamlets Together (THT) Integrated Early Years Programme and funded by THT. A group from TH PHT and THT worked closely with the research team throughout the project, meeting monthly to discuss progress and findings. The researchers were supported by a steering committee of four academics from the University of Westminster who fed into the design and planning of the research. The lead researcher was supported by a team of three research associates and six MSc student nutritionists, from Bangladeshi, Somalian, Caribbean, African, Chinese, European and UK backgrounds. The research findings fed into ongoing commissioning and resource allocation discussions to achieve nutrition outcomes through effective early years public health interventions supporting Tower Hamlets to achieve their early-years public health nutrition objectives. The researchers used a qualitative methodology to explore, in-depth, the perceptions of key stakeholders regarding young child feeding, childhood obesity, and sugar. Qualitative research can provide an in-depth subjective analysis of a window in time, it allows health planners to gain a greater understanding of what influences practices and perceptions in a population.

Location

London Borough of Tower Hamlet's population in 2015 was estimated to be 287,167. Of this, 7.7% of children (21,843) were aged 0-4 years old. The borough's profile is diverse. The 2011 Census showed 69% of the Tower Hamlets population came from 18 different minority groups. 31% of the borough is White British, 32% Bangladeshi and 12% of Other White origins which include Europeans, Australians, and North and Central Americans (LBTH 2013). Tower Hamlets is among the most deprived boroughs in England and in 2015 was ranked 10th of the 326 boroughs in the country in the index of multiple deprivations (IMD). 39% of children lived in an income deprived household and 34.4% of children under the age of 16 were living in poverty (LBTH 2015). Public health resources have had to adapt to significant resource cuts in the last five years (LBTH 2017). The Borough's 2017-2020 strategy focuses on improving children's health as one of its five main priorities (LBTH THT 2017).

Participant sampling, data collection and analysis

The participants were selected using purposeful, convenience and snowball sampling methods. The methods used to collect data included semi-structured key informant interviews, direct observation, and focus group discussions. Using key informants to access health professionals and ensuring that women who were mothers from all four areas of the borough were included in the research, the study team walked through the borough and completed a borough map of markets, nursery schools, libraries and other meeting places where women who were mothers with young children may meet. Interviews and focus groups were set up in areas agreed with by parents and health workers such as cafes, mosques, nursery school waiting areas and play areas. Approval was sought from all locations included in the research. In all, 36 key informant interviews were conducted with health visitors, family nurses, nursery schoolteachers, public health providers, dentists and voluntary community groups. Two direct

observations of health promotion classes and 18 focus group discussions were carried out throughout the borough. The focus group discussions included, in total, 119 participants including 95 mothers, 21 service providers and 3 mothers in-laws. The mothers included in the study sample included Bangladeshi (n= 26), White British (n= 16), White European (n= 12), African or Caribbean (n= 9), Somalian (n= 16), and Chinese (n= 16). Interviews took place in all four regions of the borough.

At the end of each focus group discussion, the key issues were summarised and confirmed by participants. Key informant interviews were predominantly conducted at the participants' workplaces. Data were analysed using an inductive thematic analysis to ensure that the findings reflected participants' priorities.

Ethics

Ethical clearance was granted from the University of Westminster (ETH1617-1100) and The London Borough of Tower Hamlets public health team also gave permission for the research. All participants were given an information sheet before signing consent forms, all were informed that they were allowed to opt out at any time, and feedback was given through a half-day workshop. All interviews and focus group discussions were recorded and transcribed verbatim, once the participants gave consent. The CASP guidelines developed for the NHS were used to ensure quality research standards (CASP 2018).

FINDINGS

Four main themes emerged from the data these themes and subthemes are shown in Table 1 below.

Table 1: Themes and subthemes from research

Themes	Sub-themes
1. Knowledge had not led to behaviour change	1.1 Parents preferred information on health and nutrition to come from health workers 1.2 Most parents learn from the internet and families as they are available 1.3 Parents were aware that children need to eat more fruit and vegetables and less sugar 1.4 Sugar tax may not have an impact on childhood obesity and sugar consumption
2. Communication: inaccurate messages negatively affect food choices	2.1 Mixed messages lead to misperceptions which negatively influence food choice practices 2.2 Aggressive and misleading advertising: labels inaccurately stating food is healthy 2.3 Organic food perceived as best for young children
3. Barriers to improving healthy eating practices	3.1 Cost: healthy diets are too expensive 3.2 Time to prepare healthy meals 3.3 Family and Culture 3.4 Unhealthy environments for children's health and wellbeing
4. Lack of access to public health nutrition services	4.1 Negative impact of austerity on funding for effective community PHN programmes 4.2 Lack of public health nutrition service capacity 4.3 Lack of referral mechanisms for nutrition support

Knowledge had not led to behaviour change

In general, there was a high level of knowledge regarding some public health messages, such as children should not drink too much fizzy sugary soft drinks like cola; if children eat sweets, you should brush their teeth or else they will get tooth decay; and that too much sugar was bad for children. However, there was less clarity on foods with hidden sugar like tinned foods and smoothies.

Parents preferred information from health workers, but most often used internet, family and other parents

Parents stated that they would trust the information given to them by health service providers more. Overall, most parents preferred a one-to-one discussion with health professionals, or group sessions, for their information.

“...the health visitor showed me how to use the sugar app on my phone (Sugar Smart) and I use it all the time now...” Mother

Most parents learn from the internet and families as they are available

The most common answer from parents on where they looked for information was on the internet, using their smartphones or from other parents or on sites like Mumsnet (<https://www.mumsnet.com/>).

“... A lot of the times I look at the forums to see what other mums or other parents are saying.” Mother

“Internet mostly...the internet is much easier than phoning GP and going somewhere.” Mother

Parents were aware that children need to eat more fruit and vegetables and less sugar

There was a high level of knowledge around healthy eating and what kind of foods were unhealthy, like the high levels of sugar in drinks like cola. However, some parents were not clear on the amount of sugar hidden in everyday food and children's drinks. Although parents knew sugar was not good for children, they did report giving sweets or soft drinks, mostly as a reward or a treat.

“My son he likes Ella’s fruity pouches. He will not eat regular fruit; he likes their packages, they are colourful, easy and I think he gets comfort from eating the pouches.” Mother

Service providers felt that some parents were not aware of hidden sugars like in tinned food or many processed foods.

“We try to make them understand the importance of hidden sugars in foods, and especially things like honey, that they might want to add...” Service provider

The sugar tax may not work to reduce childhood obesity and reduce sugar intake

Some parents did not know about the sugar tax. Those who were aware of it reported that the tax was unlikely to make a significant difference to their purchases. One mother explained that,

“I don’t think it is going to affect my life. I don’t think it is good to limit them... I think for my children it won’t make a difference.” Mother

Healthcare providers believed the tax was a good government action but that it would not be sufficient to significantly reduce the consumption of sugar sweetened beverages (SSBs).

“...it is a good thing because it is a national policy, but I think individual people will find those 10p or 20p to pay for something they really like... I don’t think it will be the only thing that will help with the obesity.”

Service Provider

Communication: inaccurate messages negatively affect food choices

Mixed messages lead to misperceptions which negatively influence food choice practices

Many mothers reported receiving conflicting advice from health providers, the media and other parents. When this occurred, most mothers reported listening to their family’s advice.

“There are so many mixed messages from service providers that it is the messages coming from grandparents that are followed.” Service Provider

Aggressive and misleading advertising: food labels inaccurately stating food is healthy

Parents reported feeling pressured to buy popular children’s brands of food, which were mostly high in sugar and salt. Colourful packaging with famous characters inspired children’s preferences. If they could afford it, would buy organic products that they felt were healthier for their children.

“Yes... if they choose the cereals for breakfast, they do choose the sugary ones...it is all about the packaging. If it is in a packaging with colours the kids like it. If it is plain, they don’t like it.” Mother

Parents reported giving young children smoothies or fruit juices as a healthy drink. Mothers considered this practice helped to ensure that their child had their ‘five a day’ fruit and vegetable requirements.

“There is a message out there about five a day...they feel that five a day is fruit in any form, including concentrated juice...they believe that they’re doing the right thing.” Service Provider

Organic food was perceived as being best for young children

Service providers reported concerns that parents were more interested in the fact that food as organic rather than looking at the sugar content and ingredients in the products:

“The commercial foods really influence the mums ... they say, ‘oh I just want to give organic foods’ ... they feel they are giving the baby something extra...really nutritious, just because it is organic.” Service Provider

Many participants talked about organic labelling and said that this was important to them, as they believed organic food was healthier for their families. Many women who were mothers stated that they were more likely to buy something if it was organic regardless of the sugar content in the product.

“Sometimes I buy the ready-made stuff. When it says organic and homemade.” Mother

Barriers to improving healthy eating practices

Cost: Healthy diets are too expensive

Many parents felt that healthy foods such as fresh fish, fruit and vegetables were more expensive than they could afford. Parents talked about how they would like to purchase better quality foods such as fresh meats, fish and eggs, but these items were much more expensive.

“...I want to buy the healthier option when I can.... I want to give them more fish, but I can’t give them 1/3 pasta and huge portion of fish ...it would be too expensive ... I just cannot afford it.” Mother

It is easier to buy cheaper frozen or processed food which is high in fat sugar and salt. Many parents reported that their partners were working during the week and so they do their main shopping at the weekend.

“... a lot of people’s decision are based on price you can go into Iceland¹ and buy a meal for £1...”
Mother

Parents commented that you could get a box of fifty crisps for the same price as a small bag of oranges and they would last longer. Also, the stores put lots of deals/discounts on unhealthy foods; when you are on a budget you need to watch how much you spend while still making sure your family are not hungry. Parents noted that sweets were always on offer and healthier foods were more expensive.

“... Organic veg are expensive. When I try to eat healthy, I spend more money. The prices are ridiculous.”
Mother

Time to prepare healthy meals

Parents expressed concerns around time to prepare healthier options. For example, in the morning it saved time to give a child a bowl of sugary cereal that the parent knew their child would eat than to prepare a nutritious breakfast. One mother said,

“...cereals as well. It was on the news the other day about how much sugar is in cereals. But not enough parents have the time to sit and cook a child a nice breakfast. So, you just give them cereal with milk. It is quick it is easy it fills them up, but it is so bad for him. But I am guilty of it too, and the money, it is all about the money as well.”
Mother

“It’s about convenience and cost. if you can buy some chicken and chips, you know cheaply and straight away that is going to fill up your child’s tummy then that’s going to be the choice that they make...” Service provider

Family and culture

Parents reported that their families and culture were very influential regarding what they cooked for their families. Challenging issues that were mentioned included grandparents giving sweets or other treats, cultural perceptions of correct portion sizes and what five a day really means. Some cultures see having a larger child as evidence that you are a good parent, while others use food to show how much they love their families. Some cultures in the borough are more likely to encourage larger portion sizes, even for children. They also commonly use high salt, sugar, and fat in food cooked at home. While mothers reported that children were very hungry after school and often ended up buying cheap high-fat or salty snacks, including crisps, SSBs and meal deals such as snack portions of chicken and chips. These snacks were not counted as part of the children’s meals but as snacks. It was frequently mentioned that grandparents gave their grandchildren sweets and fruit juices even when the parents asked them not to.

“.... I give my daughter things like quinoa and salad and she [my mother] says ‘no you should be giving your child things like boiled potatoes’ how different our diet is from when we were younger. There is a lot more health focus now” Mother

Unhealthy environment for children’s health and well being

There were three issues raised in relation to the environment: the aggressive advertising of unhealthy foods to children, the high number of unhealthy take away food vendors and the lack of safe spaces for their children to get a chance to play outside school. Although parents with younger children reported that they avoided buying fizzy drinks, they complained that the number of places selling cheap unhealthy food was a challenge, especially

¹ Iceland is a popular low-cost supermarket that mostly carries frozen food products.

for working mothers. Parents and carers raised the challenge of the present nursery school sessions, where you had three hours in the morning and then some mothers had another three hours in the afternoon, without a lunch option for the children. They had to pick up their children and get a quick lunch nearby, healthy lunch provision for their children would be very helpful.

“.... they should reduce fast food shops or raise the price of fast food because fast foods are cheaper than healthy food.” Mother

“My children prefer to eat takeaway food such as: chicken and chips, pizza and chicken or beef burgers, but they know that they are not allowed to have fast food everyday so this type of food is normally on treat day, such as weekend, but sometimes they will buy fast food on the way from school to home.” Mother

Lack of access to public health nutrition services

Many mothers were not aware of the services they could access such as free milk and vegetable vouchers (e.g., Healthy Start Vouchers). While others felt they had no one to ask for support regarding health eating. Healthy eating guidelines do exist; however, mothers were not clear on which were the healthiest drinks and snacks for their children. Mothers were not sure who should they refer nutrition problems to, such as fussy eating, portion sizes and diet diversity.

Negative impact of austerity reducing funding for public health nutrition service capacity to support healthy eating

There are a variety of services in the borough to support healthy eating, starting with the health visitors, as well as the school nurse and nursery nurse teams who lead on health promotion and screening. However, funding to many of these services has been dramatically reduced in the last ten years, hence reducing access to such programmes. Most healthy eating promotion is now linked to schools.

“... Every school has a school nurse to cover health issues and the nursery nurse team carry out health promotion and screening programmes, taking over from health visitors. A school can have three talks a year, they choose the topic...it may not be nutrition... some schools run... healthy eating coffee mornings for parents which they enjoy...parent ambassadors reported that parents prefer the new more positive letters sent home regarding the results of their children’s weight in reception and year 6 but there is still a lot of stigma....parents do not want to attend sessions for overweight children...they prefer more general sessions about practical solutions...My Time Active (a programme funded by Tower Hamlets which focuses on increasing children’s knowledge of healthy eating and getting them to engage in more physical activity) has been commissioned to improve healthy lifestyles in the borough.” Service Provider

Lack of referral mechanisms for nutrition support

Parents felt that they did not know who to go to for nutrition support. Some areas had community programmes running mother and child or father and child cooking sessions which were rated very highly by parents. Some nursery schools reported that they ran nutrition training sessions for their teachers. All public schools have healthy eating guidelines, but they are not always followed by parents sending in lunch or snacks. Parents were especially interested in support for fussy eaters. They were not sure where to go for help, as GP appointments are so hard to get.

"It would be really good to have some nutrition support who we can refer parents to on nutrition... perhaps would be better to link that role to schools... health visitors are already busy so it is hard to add another one and it may not happen..." Service provider

"I would like him to also be a better eater. He is not a healthy eater at all. He eats fruit but I know that is not good for your teeth. He won't eat any vegetables." Mother

One Service Provider reported that, "*there is not enough nutrition capacity in the team.*"

DISCUSSION

The research raised four main themes from the participants: knowledge, communication, challenges to health eating practices and access to public health nutrition services.

Knowledge had not led to change

There were high levels of knowledge on healthy eating amongst parents and an awareness that their families needed to reduce sugar and unhealthy food intake but less clarity on oral health and when to start brushing teeth and seeing a dentist.

Parents and service providers were aware that sugar was not healthy for children and service providers reported reductions in mothers giving sugary drinks in infant's bottles, except for fruit juices and smoothies which has increased, as parents see these as healthy for their children. Less than one-quarter of the service providers interviewed had been trained on healthy eating and oral health messages. As parents are seeking help from the internet and family first and then from their GP, more material could be added to the LBTH website (<https://www.towerhamlets.gov.uk/Home.aspx>) and strategic links with groups like Mums net. Supporting local community programmes such as Toy house again could also rebuild trust in health, nutrition and community services. Voluntary community programmes like Toy house were reported by parents as being highly effective in increasing cooking skills and nutrition knowledge for parents attending their sessions.

Communication challenges

Many mothers reported struggling with mixed messages from service providers, food labels, the media, and their relatives. When they are given mixed messages, they tend to rely on family advice or information gathered from the internet. Mothers reported a preference for face-to-face meetings rather than leaflets. Mothers and service providers were not always aware of who to contact regarding nutrition questions like fussy eating.

Lora et al. (2016) found that parents perceived fruit juice and fruit to be equally healthy. In the present study, there were mixed responses from parents about whether fruit juice was as healthy as eating fruit (due to the prevalence of *one of your five a day* labelling), indicating the negative impact of mixed messaging around the nutritional value of fruit juice versus eating fresh fruit.

More work needs to be carried out on promoting clear messages on how to identify and reduce hidden sugars in family diets in Tower Hamlets. Many parents reported using the SUGAR SMART application on their mobile phones to help identify products with high sugar content. This can help parents decide when health claims are true or not. More focus on sugar rather than calories should be considered, for example in the Change for Health campaign, which focuses on having just two snacks under 100 calories each day but does not specify the sugar content of these snacks (PHE 2021). Our research found that most 100 calorie snacks targeting school children

had high levels of sugar, many with over three times the amount of sugar a child should consume in their entire day.

Parents raised concern regarding the aggressive advertising of unhealthy food and drinks to children, placing extra pressure on them, especially when unhealthy food and drinks are significantly cheaper than healthier options. This is in line with global concerns regarding advertising to children. Places like Amsterdam have found that banning such advertising is having positive impacts on reducing childhood obesity (Bosley 2016). Abrams et al. (2015) published a qualitative study on parental views and knowledge of front-of-packaging labelling and found that labelling using bright colours and characters appealed to pre-school children and these products tended to be higher in sugar. The present study found that health claims had more of an impact on parents' decision to purchase the product than the children's preferences, as seen in other research such as Abrams et al. (2015). Food labels with the word 'fruit' appealed to parents, as it implied a healthier option. The findings from Abrams et al. (2015) concur with the Tower Hamlets study, concluding that front-of packaging labels influence children and parents. However, our study found that although package labelling influenced children, parents did not buy the products their child wanted all the time. Many parents said that colourful labelling on packages influenced their children, but 'organic' labelling influenced parents. Healthcare providers also agreed that the labels influenced parents, particularly with baby foods.

Barriers to improving healthy eating practices

Previous research supports the present findings regarding the high cost of healthy food as a barrier for parents (Khanom et al. 2015; Nepper & Chai 2016; Petrunoff et al. 2014; Collins et al. 2016). Time and convenience played a significant role in family food choices (quick to prepare and serve), in line with Collins et al. 2016. Khanom et al. (2015) explored parental barriers to making healthy choices for their family, finding that cost and accessibility of healthier options influenced parent's food choices. Unhealthy options were more affordable, while fruit and vegetables were more expensive and therefore less affordable. Parents reported they lacked access to nutritious affordable foods as supermarkets often promoted unhealthy foods at low cost, not fruit and vegetables. They also found that if parents did not know how to cook healthier options, they found it convenient to buy premade family meals or take away meals. Lack of access to more affordable healthier foods was a barrier by many participants in the Tower Hamlets study. Hoare et al. (2014) suggest that parents need a 'free' or low-cost way to replace sugary foods.

Herman et al. (2012)'s research findings differ from the present study and previous studies mentioned, because mothers did not mention cost and convenience as barriers to choosing healthier food choices. Petrunoff et al. (2014) found that parents were concerned about sugar consumption and oral health. Parents tried to give their children less sugar-dense foods or drinks to avoid child tooth decay. In line with these findings, Hoare et al. (2014) found that parents gave water to their children because they knew it was better for their child's teeth than fruit juice and SSBs. Herman et al. (2012) also found that mothers tried to give their child fewer sweets to prevent tooth decay. Unlike the parents presented in the studies above, the participants in this research reported still giving their children products with high sugar content, despite knowing that a healthy diet should have less sugar. Parents reported the negative impact of the low cost of unhealthy products and the misleading nutrient claims on the labels. The aggressive child-focused advertising and colourful branding appeals to children, but parents reported that the children did not influence the products they bought. Health claims on the labels, as well as cost and preparation time, all factored more in their purchasing choices e.g., many parents reported buying stores own brand versions of popular products.

In the research families and friends including sisters, mothers, and grandparents strongly influence mothers' actions. Mothers reported that they preferred and trusted information from health professionals most but getting access to them was difficult as they often need to book weeks in advance. Due to this access challenge, mothers reported that they asked their family members for advice or looked on the internet for advice. However, parents in this study reported frustration in regards to the practices of their families giving their children unhealthy treats and SSBs. This finding also surfaced in the previous Feeding Infants in Tower Hamlets (FIT) research report (Rayment et al. 2013) which explored support required to improve infant feeding practices in mothers from Bangladesh. Few community programmes include older women in their health promotion activities. One approach could be to train family members, community members, older women and mothers in-laws as peer counsellors, to support mothers to breastfeed, and to develop healthier versions of traditional meals. Black et al. (2013) suggest that developing peer counsellors can help to improve infant health and nutrition outcomes.

Hoare et al. (2014) also found that family members influenced children's beverage choices, particularly grandparents, because they often provided children with SSBs. This supports the findings from the present study. Herman et al. (2012) examined the challenges mothers faced when it came to feeding children under five, and found similar findings, that the family had more impact on food choice than the children did. These findings suggest that communication about healthier food options need to be targeted at the extended family as well as parents. Health promotions programmes need to include the whole family when it comes to reducing sugar in children's diets. More work is required to encourage elders in the communities to work with nutrition and health teams to develop culturally respectful recipes that retain the cultural flavours while being healthier for the families to eat.

Petrunoff et al. (2014) published a qualitative study reporting similar challenges to improving children's diets. Unhealthy foods were described as 'treat' foods and examples included lollies, cakes, doughnuts or SSBs. The study found that when giving these foods to children, parents were influenced by several factors. The main factors that influenced 'treat' food purchases had to do with what their child wanted, and the cost and convenience of these sugary foods. This finding was less obvious in the present study, as some parents reported that they would continue to give their child occasional treats such as cakes or SSBs; however, they perceived the greatest challenge was their family who would give unhealthy treats regularly.

Nepper and Chai (2016) also examined barriers to making healthy food choices and found that fussy eating also made it difficult for parents to get their children to eat healthily, a theme of major concern in the present study and in Khanom et al. (2015). Lack of access to support services to address fussy eating was a priority complaint from our participants. Future research and interventions to address 'fussy eating' would help improve healthy eating habits, while providing services that the parents have identified as priority issues, helping to increase trust between parents and health systems.

Food Foundation (2016) presented a link between parents' unhealthy eating patterns and their impact on child preferences. This supports the service provider's perceptions in the present study in that many healthcare providers reported that mothers disliked specific foods or ate limited foods from certain food groups, resulted in their children avoiding the same foods.

Parents reported that the number of fast-food retailers in Tower Hamlets had influenced their children in a negative manner, with many children preferring to eat fast food. This food is cheap, tasty and ready to eat which is hard for a mother to compete with, especially when the children are hungry on the way home from school. These findings support the research published by Food Foundation in 2016 and 2021.

The older children get, the more this environment has an impact on the choices that young people make when in control of their own purchases. Hoare et al. (2014) reported that children drank more SSBs when they were older because they could make their own purchases away from the home environment. Although the present study focused on younger children, parents reported that as children get older, they find it harder to get their child to make healthy choices.

Participant parents felt that more could be done in schools to encourage healthy eating for children, while fewer fast-food vendors open when schools are getting out could help more to reduce the number of children eating unhealthy snacks on the way home from school.

The successful Amsterdam programme (Bosley 2016) placed restrictions on the selling of unhealthy foods to children unless their parent was present and ensured that all schools had water fountains for the children to drink from with all other drinks (except milk) prohibited. Tower Hamlets has also implemented a similar policy banning SSBs and other unhealthy drinks in schools; however, only addressing the school environment will not be enough to bring about sustained changes in food and exercise habits without addressing the environmental constraints raised by parents, including the lack of safe roads and play spaces for their children.

Lack of access to public health nutrition services

There was a lack of population nutritionist capacity in the public health team and in the borough in general. Some CCG practices employed dietitians to see patients with obesity or other nutritional problems on a one-to-one basis but clearer population-focused nutrition input into policies and practices could support better health and nutrition outcomes in the borough. Parents wanted more support on specific nutrition challenges such as fussy eating and portion size guidance for young children. Borough infant feeding programmes could help increase exclusive breastfeeding rates while also helping to reduce problems such as fussy eating and childhood obesity. These findings support similar research in Tower Hamlets on infant and young child feeding in 2017 (Keith et al. 2017) and in recent research completed by the Future of Nutrition research collaboration exploring the impact of COVID on accessing public health nutrition services (Noonan-Gunning et al. 2021). Noonan-Gunning et al. (2021)'s research calls for increased government resources and leadership to implement more equitable access to public health nutrition services. The National Food Strategy for England, providing an independent review of England's food chain from field to fork (DEFRA 2021), supports this, calling for a more robust focus on food security in England.

Limitations of this research

Qualitative research is a subjective window in time; the present research presents an in-depth view into what factors were affecting practices and perceptions in the London Borough of Tower Hamlets in 2017. Like all qualitative research, its findings should be generalized beyond its participants only with caution.

CONCLUSIONS

This research had the advantage of being a collaboration with the local government public health team and many interviews were carried out in local languages from the Tower Hamlets communities. It highlights the negative impact of the sustained austerity measures implemented in the UK over the last decade. These resource constraints, combined with internal organisational change processes, have had a negative impact on family's food baskets, service availability, staff morale and access to healthy eating and oral health services. Setting up referral networks could help the borough achieve their ambitious targets, above all including mothers and service providers in the planning and evaluation of the services will help to strengthen trust between the community and the service provider network. All communities need to develop systems for collecting such perceptions in a more routine manner to ensure the voices of populations can feed into future policies and plans. A multi stakeholders'

group, at the borough, could address barriers parents face trying to ensure healthier eating practices. More intersectoral work is needed to improve health and nutrition outcomes, such as changes to advertising of unhealthy foods, reducing unhealthy takeaways near schools, increasing access to free nutrition school meals and reducing the prohibitive cost of fresh food. Further research into the public health nutrition services is also required.

References

- Backholer, K., Sarink, D., Beauchamp, A., Keating, C., Loh, V., Ball, K., Martin, J., Peeters, A. 2016. The impact of a tax on sugar-sweetened beverages according to socio-economic position: a systematic review of the evidence. *Public Health Nutrition*. 19(17):3070-3084. <https://pubmed.ncbi.nlm.nih.gov/27182835/>
- Black RE, et al. 2013. Maternal and child undernutrition and overweight in low-income and middle-income countries. *The Lancet*. 382(9890):427-451. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(13\)60937-X/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(13)60937-X/fulltext)
- Boulton J, Hashem KM, Jenner KH, et al. 2016. How much sugar is hidden in drinks marketed to children? A survey of fruit juices, juice drinks and smoothies. *BMJ Open*. 2016;6: e010330. Doi: 10.1136/bmjopen-2015-010330
- Bosley, S. 2017. Amsterdam's solution to the obesity crisis: no fruit juice and enough sleep. *Guardian*; April. <https://www.theguardian.com/society/2017/apr/14/amsterdam-solution-obesity-crisis-no-fruit-juice-enough-sleep>
- Breslin, D. 2019. Closed Doors. The results of cuts and children centres closures. Action for Children UK. https://media.actionforchildren.org.uk/documents/Action_for_Children_-Closed_Doors_Report_June_2019.pdf
- Buck, D. 2015. Cuts to public health spending: the falsest of false economies. Kings Fund, UK. <https://www.kingsfund.org.uk/blog/2015/08/cuts-public-health-spending-falsest-false-economies>
- CASP. 2018. Critical Appraisal Skills Programme:10 questions to help you make sense of a Qualitative research https://casp-uk.net/wp-content/uploads/2018/03/CASP-Qualitative-Checklist-2018_fillable_form.pdf
- Census Data. 2013. Ethnicity in Tower Hamlets Analysis of 2011 Census data. England and Wales. Office of National Statistics. https://www.towerhamlets.gov.uk/Documents/Borough_statistics/Ward_profiles/Census-2011/RB-Census2011-Ethnicity-2013-01.pdf
- DEFRA. 2021. National Food Strategy: Part one the Plan. An independent review of England's food chain from field to fork. Department for Environment Fisheries and Rural Agriculture, UK Government. <https://www.gov.uk/government/publications/national-food-strategy-for-england>
- Food Foundation. 2016. Peas Please Veg Facts Report. Launch of the Peas Please campaign. Food Foundation, UK. <https://foodfoundation.org.uk/publication/veg-facts-2016>
- Food Foundation. 2021. The Critical Importance of Early Years Nutrition on preventing Childhood Obesity. Written by S. Goodie, Food Foundation UK. <https://foodfoundation.org.uk/publication/critical-importance-early-years-nutrition-prevention-childhood-obesity>
- Hawkes, C, Harris, J, Gillespie, S. 2017. Urbanisation and the Nutrition Transition, in Global Food Policy Report, (4) pp. 34-41. https://doi.org/10.2499/9780896292529_04

Herman, A.N., Malhotra, K., Wright, G., Fisher, J.O., Whitaker, R.C. 2012. A qualitative study of the aspirations and challenges of low-income mothers in feeding their preschool-aged children. *The International Journal of Behavioural Nutrition and Physical Activity*. 9(1):1-3. <https://doi.org/10.1186/1479-5868-9-132>

Hoare, A., Virgo-Milton, M., Boak, R., Gold, L., Waters, E., Gussy, M., Calache, H., Smith, M., de Silva, A.M. 2014. A qualitative study of the factors that influence mothers when choosing drinks for their young children. *BMC Research Notes*. 7(1):1-9. DOI: [10.1186/1756-0500-7-430](https://doi.org/10.1186/1756-0500-7-430)

Keith, R., Ujah Mba, E., Li, X., Wright, D., Twite, D., Trenchard-Mabere, E., Mondkar, A. 2019. Understanding the practices and perceptions surrounding infant and young child feeding in Tower Hamlets UK. *World Nutrition*. 10(1):18-37. <https://doi.org/10.26596/wn.201910118-37>

Keith, R., Nasser I. 2018. Food Fun and Friends: the impact of holiday clubs on the reduction of learning loss in the London Borough of Tower Hamlets. A qualitative evaluation report on a pilot programme in the London Borough of Tower Hamlets focusing on 8–10-year-olds. Food Nutrition and Public Health Division, University of Westminster. Unpublished.

Khanom, A., Hill, R.A., Morgan, K., Rapport, F.L., Lyons, R.A., Brophy, S. 2015. Parental recommendations for population level interventions to support infant and family dietary choices: a qualitative study from the Growing Up in Wales, Environments for Healthy Living (EHL) study. *BMC Public Health*. 15(1):1-4. <https://doi.org/10.1186/s12889-015-1561-4>

Lora, K.R., Hubbs-Tait, L., Guzman, M., Wakefield, D., Sisson, S.B., Mayeux, L. 2016. Pre-schoolers' influence on and help with beverage selection at the grocery store is linked to maternal responsiveness and child beverage intake: An exploratory study. *Eating Behaviours*. 23:19-23. DOI: 10.1016/j.eatbeh.2016.07.008

London Borough of Tower Hamlets. 2013. Ethnicity in Tower Hamlets.

https://www.towerhamlets.gov.uk/Documents/Borough_statistics/Ward_profiles/Census-2011/RB-Census2011-Ethnicity-2013-01.pdf

London Borough of Tower Hamlets. 2015. Deprivation in Tower Hamlets. Analysis of the 2015 Indices of Deprivation data.

https://www.towerhamlets.gov.uk/Documents/Borough_statistics/Income_poverty_and_welfare/Indices_of_Deprivation_Low_resolution.pdf

London Borough of Tower Hamlets. 2017. Obesity and overweight figures for children aged 4-5 and 10-11.

<https://democracy.towerhamlets.gov.uk/documents/s154102/Addressing%20Childhood%20Obesity%20in%20Tower%20Hamlets.pdf>

London Borough of Tower Hamlets and Tower Hamlets Together. 2017. Tower Hamlets Health and Wellbeing Strategy 2017-2020. Tower Hamlets Health and Wellbeing Board Tower Hamlets (LBTH THT).

https://www.towerhamlets.gov.uk/Documents/Public-Health/Health_Wellbeing_Strategy.pdf

Nakhimovsky, S.S., Feigl, A.B., Avila, C., O'Sullivan, G., Macgregor-Skinner, E., Spranca, M. 2016. Taxes on Sugar-Sweetened Beverages to Reduce Overweight and Obesity in Middle-Income Countries: A Systematic Review. *PLoS One*. 11(9):e0163358. <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0163358>

Nepper, M.J. and Chai, W. 2016. Parents' barriers and strategies to promote healthy eating among school-age children. *Appetite*. 103:157-164. DOI: 10.1016/j.appet.2016.04.012

Newens, K.J. and Walton, J. 2016. A review of sugar consumption from nationally representative dietary surveys across the world. *Journal of Human Nutrition and Dietetics: The Official Journal of the British Dietetic Association*. 29(2):225-240. Doi: 10.1111/jhn.12338.

NHS. 2015. National Childhood Measurement Programme, England 2014-15 November 2015
ONS, Office of National Statistic (2015), *Population Estimates 2015 Analysis of the 2015 mid-year population estimates for Tower Hamlets*. England and Wales. Office of National Statistics.

Noonan-Gunning, S, Lewis, K, Kennedy, L, Swann, J, Gursimran Kaur, A, Keith, R. 2021. Is England's public health nutrition system in crisis? A qualitative analysis of the capacity to feed all in need during the COVID 19 pandemic *World Nutrition*. 12(2):83-103. <https://doi.org/10.26596/wn.202112283-103>

Park, S., Pan, L., Sherry, B., Li, R. 2014. The association of sugar-sweetened beverage intake during infancy with sugar-sweetened beverage intake at 6 years of age. *Paediatrics*. 134(Suppl 1):S56-62.
DOI: [10.1542/peds.2014-0646J](https://doi.org/10.1542/peds.2014-0646J)

Park, S., Lin, M., Onufrak, S., Li, R. 2015. Association of Sugar-Sweetened Beverage Intake during Infancy with Dental Caries in 6-year-olds. *Clinical Nutrition Research*. 4(1):9-17. DOI: [10.7762/cnr.2015.4.1.9](https://doi.org/10.7762/cnr.2015.4.1.9)

Park, S., Onufrak, S., Sherry, B., Blanck, H.M. 2014. The relationship between health-related knowledge and sugar-sweetened beverage intake among US adults *J Acad Nutr Diet*. 114(7):1059–1066. DOI: 10.1016/j.jand.2013.11.003

Petrunoff, N.A., Wilkenfeld, R.L., King, L.A., Flood, V.M. 2014. 'Treats', 'sometimes foods', 'junk': a qualitative study exploring 'extra foods' with parents of young children. *Public Health Nutrition*. 17(5):979-986. DOI: [10.1017/S1368980012005095](https://doi.org/10.1017/S1368980012005095)

Public Health England. 2015. Sugar Reduction. The evidence for action.
<https://www.gov.uk/government/publications/sugar-reduction-from-evidence-into-action>

Public Health England. 2016a. Young children still exceeding sugar recommendation.
<https://www.gov.uk/government/news/young-children-still-exceeding-sugar-recommendation>

Public Health England. 2016b. Soft drinks industry. Levy: 12 things you should know. 18th August.
<https://www.gov.uk/government/news/soft-drinks-industry-levy-12-things-you-should-know>

Public Health England. 2016c. NCMP Local Authority Profile: Tower Hamlets.
<https://fingertips.phe.org.uk/static-reports/health-profiles/2019/e09000030.html?area-name=tower%20hamlets>

Public Health England. 2019. Public Health England Strategy 2020 to 2025 Protecting and improving the nation's health.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/831562/PHE_Strategy_2020-25.pdf

Rayment J, McCourt C, Vaughan L, Christie J, Trenchard-Mabere E. 2015. Bangladeshi women's experiences of infant feeding in the London Borough of Tower Hamlets. *Maternal & Child Nutrition* 12(3):484-99. doi: 10.1111/mcn.12169

Russell, CG et al. 2016. Effects of parent and child behaviours on overweight and obesity in infant and young children from disadvantaged backgrounds: systematic review with narrative synthesis. *BMC Public Health*. 16:151. <https://doi.org/10.1186/s12889-016-2801-y>

SACN. 2015. Carbohydrates and Health. The Scientific Advisory Committee on Nutrition recommendations on carbohydrates, including sugars and fibre <https://www.gov.uk/government/publications/sacn-carbohydrates-and-health-report>

Scaglioni, S., Salvioni, M., Galimberti, C. 2008. Influence of parental attitudes in the development of children eating behaviour. *Br J Nutr.* 99 Suppl 1:S22-5. Doi: 10.1017/S0007114508892471.

Thomas, C. 2019. Hitting the poorest worst? How public health cuts have been experienced in England's most deprived communities: an ounce of prevention is worth a pound of cure. IPPR blog.

<https://www.ippr.org/blog/public-health-cuts>

UK Government. 2007. Foresight report Tackling Obesities: Future Choices – Project Report, UK Government. <https://www.gov.uk/government/publications/reducing-obesity-future-choices>

UK GOV 2018. Soft Drinks Industry levy: comes into effect. April; UK Government. <https://www.gov.uk/government/news/soft-drinks-industry-levy-comes-into-effect>

United Nations. 2015. Transforming our world: the 2030 Agenda for Sustainable Development Resolution 70/1. United Nations General Assembly, October.

https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_70_1_E.pdf

WHO. 2010. Recommendations on the marketing of foods and non-alcoholic beverages to children. <https://www.who.int/publications/i/item/9789241500210>

WHO. 2014. Global nutrition targets 2025: policy brief series (WHO/NMH/NHD/14.2). <https://www.who.int/publications/i/item/WHO-NMH-NHD-14.2>

WHO. 2015. Guidelines on sugar intake for adults and children. <https://www.who.int/publications/i/item/9789241549028>

WHO. 2019. Essential Nutrition Actions: mainstreaming nutrition through the life course. <https://www.who.int/publications/i/item/9789241515856>

WHO 2021. Global Nutrition Report. 2021. World Health Organisation: Geneva. <https://globalnutritionreport.org/reports/2021-global-nutrition-report/>

Wright, A., Smith, K.E., Hellowell, M. 2017. Policy lessons from health taxes: a systematic review of empirical studies. *BMC Public Health*. 17(1):1-4. DOI: [10.1186/s12889-017-4497-z](https://doi.org/10.1186/s12889-017-4497-z)