Childhood Obesity in the UK and Glasgow: Challenges and Way Forward

Stephanie CHAMBERS

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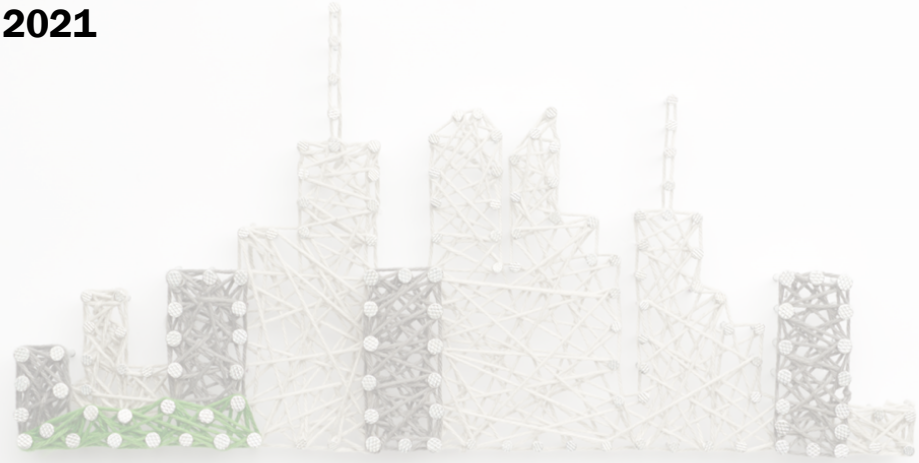

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Summary

One in five 4-5 years old children are at risk of overweight or obesity in England, increasing to one in three by age 11. Policy commitments include halving childhood obesity by 2030 and reducing inequalities. Challenges include the complex nature of obesity, requiring multiple partners to take action. Most UK children eat diets of poor nutritional quality. The food environment must improve including school food, retail outlets around schools, food advertising and food insecurity. Good infrastructure that allows for active travel, and investment in green space and leisure facilities are needed to reduce childhood obesity. Best practices include Leeds' reduction in childhood obesity after implementing a family support programme, bans on unhealthy food advertising on public transport in London, and the introduction of a levy on sugar-sweetened beverages.
Glasgow, Scotland, is the third largest city in the UK. It has high poverty levels, leading to food insecurity. Breastfeeding rates are low, as is uptake of school meals in secondary schools. Glasgow also faces challenges in increasing active transport and addressing community safety. In April 2021, Glasgow launched a City Food Plan which aims to work with multiple partners across the food system. Glasgow has also invested in improving physical literacy and access to physical activity for children, while currently developing an active transport strategy. Stakeholders must work together to address childhood obesity. Sustainable environments must be created including: high quality and sustainable public sector food; appropriate planning restrictions; and limiting unhealthy food marketing.

About this Background Paper

This Background Paper was commissioned by the Asia-Europe Foundation's Education Department and the Hanns Seidel Foundation as part of the 23rd ASEF Summer University (ASEFSU23) on '*Liveable Cities for a Sustainable Future*', an international Hackathon to tackle urban challenges in Bangladesh, India and Pakistan which took place between September and November 2021.

This Background Paper is linked to one of the Hackathon challenges - Child Obesity in India – which was tackled by the young ASEFSU23 participants coming from 39 ASEM countries in Asia and Europe. It provides insights on the topic of Child Obesity by focusing on a different ASEM country & context: England.

This Background Paper was proofread and copyedited by the Asia-Europe Foundation's Education Department.

Disclaimer

The author, Dr. Stephanie CHAMBERS, is Lecturer in Sociology of Health and Wellbeing at the University of Glasgow, Scotland. The views and opinions expressed in this background paper are the author's own and do not reflect the views of the Asia-Europe Foundation nor the views of the Hanns Seidel Foundation.

1. Overview of Childhood Obesity in the UK

1.1 Introduction

Obesity describes a physical condition whereby an individual's weight to height ratio is judged to be at a level that is harmful to human health. Whether an adult is obese or not is measured using the following formula: weight (kg)/height (m^2). This creates a Body Mass Index score (BMI) which can be grouped into five categories:

- < 18.5 = underweight;
- 18.5-24.9 = healthy weight;
- 25-29.9 = overweight;
- 30-39.9 = obese;
- 40+ = morbidly obese.

In children, the calculation is standardised by the distribution of BMI by age and sex. Children with a BMI in the 85th to 94th percentile for their age are at risk of overweight and in the 95th percentile and above for their age at risk for obesity.

There is substantial evidence that obesity is related to negative health outcomes. In the short term, children at risk of obesity are more likely to experience high blood pressure/cholesterol, type 2 diabetes, breathing problems, joint problems, and social and emotional issues (Abbasi, Juszczyk, van Jaarsveld, & Gulliford, 2017; Centers for Disease Control and Prevention, 2021; Gundersen, Mahatmya, Garasky, & Lohman, 2011). In the longer-term, children at risk of obesity are more likely to be classified as obese as adults (Simmonds, Llewellyn, Owen, & Woolacott, 2016). This increases their risk as adults for cardiovascular disease, some cancers, type 2 diabetes and liver disease (Guh et al., 2009; Scheen & Luyckx, 2002). This not only has substantial costs for the National Health Service (£6.1 billion per year), (Ministry of Housing, 2019) but is thought to have wider societal costs of £27 billion per year (McPherson, Marsh, Brown, & Britain, 2007).

Data collected from the National Childhood Measurement Programme in 2019/20 (Public Health England, 2021a), found that one in five children in England were at risk of overweight or obesity when they started primary school. By the time they leave at age 11, this figure has risen to one in three children. Obesity is socially patterned. Deprivation levels are measured for small geographical areas based on seven domains (Ministry of Housing, 2019): income, employment, education, health, crime, barriers to housing & services, and the living environment. These areas are then ranked from highest to lowest across England. Children living in areas of England with the highest levels of deprivation are twice as likely to be at risk of obesity than those living in areas with the lowest levels of deprivation. These inequalities increase from the beginning of primary school to when children leave, with a percentage difference of 8% between the least and most deprived areas in the first year of primary school, rising to almost 18% in the final year.

Health is a devolved policy area in the UK. The main responsibility for childhood obesity in Scotland, Wales and Northern Ireland lies with the Scottish Government, Welsh Government and the Northern Irish assembly respectively. The UK Government is responsible for health in England and some non-devolved areas across the UK, such as fiscal policies impacting on health and regulation of unhealthy food advertising.

In 2018, the UK Government expressed a commitment to halving childhood obesity by

2030 and to reducing obesity inequalities between children in the most and least deprived areas (Department of Health and Social Care, 2018). They believed these goals could be achieved primarily through dietary interventions. Sugar reduction was a particular focus, including the introduction of a Soft Drinks Industry Levy (described in more detail below), voluntary reformulation by the food industry of foods to reduce sugar and calories and an update of the School Food Standards to reduce sugar consumption. The UK Government also committed to introducing legislation for the introduction of calorie labelling on the out of home food sector. Further plans were revealed around food advertising and in store promotions.

This paper will focus on a Scottish city, Glasgow, which comes under Scottish Government health policy. The Scottish Government has also committed to halving childhood obesity in Scotland by 2030. In their *Diet and Healthy Weight Delivery Plan* (Scottish Government, 2018), they outlined ways in which this could be achieved including:

- improving nutrition in childhood
- transforming the food environment
- improving access to weight management services
- improving leadership across all sectors
- reducing diet-related health inequalities

As outlined above, policies to reduce childhood obesity focus on diet. Some of the challenges related to improving diets are outlined below. The UN Sustainable Development Goal 11 – Sustainable Cities and Communities (SDG11) is not explicitly integrated in key policies to reduce childhood obesity in the UK. Nevertheless, there are specific targets within SDG11 that have an important role in supporting diet and physical activity through improvements in the physical, social and economic environment within UK cities. These include:

- 11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all
- 11.6 By 2030, reduce the adverse per capita environmental impact of cities
- 11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces
- 11.A Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning

1.2 The Complexity of Childhood Obesity

Understanding of obesity has broadened and there is now a greater acknowledgement that individual lifestyle choices are not the single driver of increases in childhood obesity (Campbell, 2016). Instead, there is recognition of the multiple factors across society that impact on the food children eat and their opportunities to engage in physical activity. Indeed, the ways in which SDG11 targets interact with both diet and physical activity provide clear examples of this complexity. The recognition of complexity is welcomed, as are solutions which consider a whole-systems approach to addressing childhood obesity. Whole-systems approaches seek to intervene at multiple levels in the environment to improve health outcomes for populations. Nevertheless, the complexity argument has been identified as a significant challenge to public health (Savona, Thompson, Smith, & Cummins, 2021). It can undermine efforts to undertake ambitious actions to improve societies as the chances of success are described as being low. Instead, more

simplistic approaches around individuals acting to address their own diets are put forward by powerful actors, such as the food and beverage industry or governments.

1.3 Challenges: Diet and the Environment

Diet is the main driver of obesity. Dietary patterns amongst UK children fail to meet recommendations, particularly in urban areas (T. T. Morris & Northstone, 2015). Fruit, vegetable and fibre consumption are low, whilst sugar and highly processed food consumption is high (Amoutzopoulos, Steer, Roberts, Collins, & Page, 2020; NHS Digital, 2019). Highly processed foods have been implicated in weight gain (Askari, Heshmati, Shahinfar, Tripathi, & Daneshzad, 2020).

Issues relating to nutritional intake begin in the early years with relatively low breastfeeding rates in the UK compared with other industrialised countries. Only 1% of mothers meet the recommendation to exclusively breastfeed until their infants are 6 months (McAndrew et al., 2012). Breastfeeding reduces the risk of childhood obesity (Yan, Liu, Zhu, Huang, & Wang, 2014). Negative attitudes to breastfeeding in public still exist (C. Morris, Schofield, & Hirst, 2020). Mothers in the UK, particularly those who are disadvantaged, black and ethnic minority and younger mothers, do not feel comfortable breastfeeding in public spaces (Boyer, 2018; Condon, Rhodes, Warren, Withall, & Tapp, 2013; Hunter & Magill-Cuerden, 2014; Twamley, Puthussery, Harding, Baron, & Macfarlane, 2011). Formal and informal support are essential, as well as policies to support mothers to breastfeed in public.

The physical environment in which children spend time can impact the foods that they consume. The nutritional and overall quality of school food has been criticised previously, however, standards have risen in more recent years. Uptake of school meals is particularly low for secondary school children. Instead, they are more likely to bring less healthy foods from home or consume less healthy foods from retailers surrounding schools. Food prepared out of home is a particular challenge due to its poor nutritional quality and the frequency with which children eat it. Access to fast-food, and the number of fast-food outlets, have been linked with higher levels of childhood obesity (Ministry of Housing, 2019; Townshend & Lake, 2017). Areas of high deprivation have a more fast-food outlets (Wilsher, Harrison, Yamoah, Fearne, & Jones, 2016). Other issues of concern are that marketing of unhealthy foods in the urban environment is extensive. This includes promotions which encourage over-consumption, but also advertising in streets, cinemas and on public transport. Unhealthy food advertising is more prevalent in areas of higher deprivation (Olsen et al., 2021). This kind of advertising has been shown to influence children's food preferences and consumption of unhealthy foods (Cairns, Angus, Hastings, & Caraher, 2013).

The economic environment also impacts food decisions. Eating the recommended diet costs almost three times the amount that the average person spends on food and drinks each week and only around half of UK households have food budgets that would allow them to meet the costs of the food recommended (Scott, Sutherland, & Taylor, 2018). Food insecurity has risen since the 2008 economic recession (Loopstra, Reeves, & Tarasuk, 2019), and more recently with the Covid-19 pandemic (Loopstra, 2020). This impacts both the volume and nutritional quality of food available to families (Bazerghi, McKay, & Dunn, 2016).

1.4 Physical activity and the environment

Physical activity, including reduced sitting time, can play an role in helping to prevent childhood obesity (Brown & Summerbell, 2009). Children should participate in 60 minutes of sport or physical activity each day. Only 45% of children in England achieve this recommendation and boys, younger children and children identifying as white British are most likely to (Public Health England, 2021b).

The UK Government has focused on sport as a means to increase physical activity levels (Downward, Hallmann, & Rasciute, 2018). Barriers to accessing sport exist however, including cost and time, as well as lack of confidence and embarrassment (Somerset & Hoare, 2018). Active travel is likely to be a more effective way to increase physical activity in children (Cooper, Jago, Southward, & Page, 2012). Active transport includes walking, cycling, running as well as other modes, such as skating/skiing and wheeling (for wheelchair users). There is also evidence that access to green spaces, such as parks, can reduce the risk of childhood obesity (Jia et al., 2021). Access to leisure facilities are an additional means through which childhood obesity can be reduced (Dunton, Kaplan, Wolch, Jerrett, & Reynolds, 2009). However, leisure centres in England have suffered from lack of investment, with funding from central government declining by one-third in the last decade (Local Government Association, 2020).

1.5 Best practices

Leeds is a city located in the North of England with a population of almost half a million people. In contrast to most areas in the UK, the city has seen a reduction in childhood obesity in 5 year olds from 9.4% in 2009/10 to 8.8% in 2016/17 (Rudolf et al., 2019). The largest reductions were seen in children living in the most deprived areas. Success was attributed to the HENRY (Health, Exercise, Nutrition for the Really Young) programme, a childhood obesity prevention programme that works with disadvantaged families to promote healthier lifestyle habits. Critics have questioned whether closer examination of the data suggests that childhood obesity rates are flat over a longer time period (Frost, 2019), and whether an approach that focuses so closely on family behaviour, rather than the wider environment, is likely to be the cause of these results (Thornton, 2019).

Almost 9 million people live in London, with over 2 million under 18 years. Similar to other areas across the UK, the city has been unable to reduce childhood obesity rates. With the aim of introducing actions to halve rates by 2030, the Greater London Authority prohibited advertising of unhealthy products across public transport in the city in 2019. London was one of the first cities to introduce such a ban, and other local authorities are following this path. The food and drinks industry opposed the ban in opposition to public health evidence that supported it (Lauber, Hunt, Gilmore, & Rutter, 2021), however, they were not successful in stopping its implementation. The impact of the policy is being evaluated and results are expected in 2022.

In 2018, the UK government introduced a Soft Drinks Industry Levy. The levy meant that any company selling beverages with certain levels of added sugar were required to pay an additional tax. Early evaluations of the policy indicate that it has been successful in incentivising companies to reformulate their products to include less sugar (Scarborough et al., 2020). Early analysis of consumption indicates that although the volume of soft drinks purchased remains unchanged, the sugar within purchased drinks has decreased by 10% (Pell et al., 2021). The UK government

committed to investing the money raised from the levy into breakfast clubs for disadvantaged children and children's Physical Education and sports participation.

2. Overview of Childhood Obesity in Glasgow

2.1 Introduction

Glasgow is the third largest city in the UK by population size. It is home to over 600,000 residents, including 100,000 children aged 0-15 years. Glasgow is located in the west of Scotland. It has an industrial past but with deindustrialisation, and lack of investment and development within the city, Glasgow has faced challenges in employment, housing, crime and health and wellbeing (Walsh, McCartney, Collins, Taulbut, & Batty, 2016).

Relatively high numbers of children are at risk of overweight or obesity within Glasgow (Understanding Glasgow, 2021b), with one in four children in their first year of Primary school at risk in 2018/19. These rates have increased since 2014/15 and inequalities have not reduced. Children living in the areas of highest deprivation are twice as likely to be at risk of obesity compared with those in the least deprived areas.

2.2 Challenges

Poverty

Glasgow's high levels of poverty and its impact on health have been well documented (Walsh et al., 2016). The city has suffered from low levels of development historically and poor planning decisions that destroyed the social, economic and physical fabric of the city. In examining Scotland's progress in meeting SDG11, the inability for governments to reduce poverty is highlighted as a significant challenge (H. Pautz, O. Tozan, & P. Bradley, 2019). One in three children in Glasgow live in poverty (38,000 children)(Understanding Glasgow, 2021e), and while absolute child poverty rates in Scotland have reduced, relative poverty has increased (Scottish Government, 2019).

One of the main ways in which poverty impacts on childhood obesity is that families can experience food insecurity and/or an inability to purchase healthy, minimally processed foods. Survey data indicates that more than one in 10 Glaswegians had experienced at least one event of food insecurity (Understanding Glasgow, 2021d).

Diet and nutrition

Glasgow faces a substantial challenge to improve nutrition in the city. Scottish diets have a reputation for being high in fat, sugar and salt and low in fruit and vegetables and other minimally processed foods (Knight, 2016). Progress in this area is slow (Food Standards Scotland, 2020). Glasgow has relatively low levels of breastfeeding, with only around one third of mothers exclusively breastfeeding at 6-8 weeks (Understanding Glasgow, 2021a). Free school meals are available to all children whose families are receiving certain state benefits from or are on low incomes. There are strict regulations around the foods that can be served. In

Glasgow, around 40% of school children are entitled to receive a free school meal (Glasgow Food Policy Partnership, 2021). Uptake of these meals in primary schools is relatively high (77%), but in secondary schools this falls to only 57%. Around half of 11-18 year olds buy their lunch at shops and vans around their school.

Physical activity

Inequalities in physical activity between Glasgow and other areas historically have been less pronounced than other aspects of health. Physical activity levels are less likely than diet to be socially patterned. A challenge across Scottish children is in supporting older children to keep to the recommended physical activity level of 60 minutes per day. At least 80% of children aged 5-11 meet the guidelines but by ages 13-15, this has decreased to 61% (Scottish Government, 2020).

A means through which physical activity can be supported in children is through active transport (Falconer, Leary, Page, & Cooper, 2015), but car use is extensive having more than doubled in Scotland from 1975 to 2019 (Understanding Glasgow, 2021f). Glasgow has the largest traffic volume of all Scottish local authorities. Road traffic accidents are 3-4 times higher in the most deprived areas compared to the least deprived areas. Parents generally report concern about children being injured in road traffic accidents (O'Connor & Brown, 2013) and this limits their ability to use sustainable modes of transport to attend school and to play safely outdoors. Around half of children actively travel to school, but levels of walking have fallen by 10% since 2008, and more children are driven to school than in other cities (Understanding Glasgow, 2021f).

Another important means for supporting physical activity is through outdoor play. Parents need to feel that the spaces in which their children play are safe. Glasgow has a higher level of recorded crimes than other Scottish cities, and this is 81% higher than the national average (Understanding Glasgow, 2021c). Community safety issues tend to be concentrated in the most deprived areas of the city, and these issues are long standing. They connect with the challenges outlined when discussing poverty in the city including regeneration, unemployment and health.

2.3 Best practices

Improving Glasgow's diet - Glasgow City Food Plan

In April 2021, Glasgow launched the Glasgow City Food Plan (Glasgow Food Policy Partnership, 2021). The 10-year plan was developed with a range of partners from the public, private and non-governmental sectors. It takes a systems and place-based approach to understanding and improving the sustainability of the food that the city's population eats, that is, highlighting the link between the economy, politics, health, the environment and society. It strives to increase the demand and supply of sustainable low carbon, local food sources in the city. A long-term aim is to improve the health and wellbeing of the population. Children and young people are one of six main themes within the plan. Short-term aims include:

- Initiatives to promote and support breastfeeding. It is an offence in Scotland for an individual or business to prevent mothers breastfeeding their child.
- improving the nutritional impact of food in schools including expanding the provision of free school meals to all primary school children, promoting the uptake of school meals in secondary schools, improving the food on offer surrounding schools.

- Maximising the impact of the school curriculum including gaining practical cooking and growing skills, as well as learning about sustainable food systems.
- Treatment for children at risk of overweight and obesity, including raising awareness of Child Healthy Weight programmes.

Encouraging physical activity – getting young people moving, active travel, community safety and green space

Glasgow has indicated a commitment to increasing physical activity amongst children within the city. As part of Glasgow's Improvement Challenge, there has been a focus on improving physical literacy, access to sport and activities and investment in outdoor learning (Glasgow City Council, 2021).

In 2011, the majority of Glaswegians commuted to work without a car (59%) (Understanding Glasgow, 2021f). We await the 2021 census to find out whether further progress has been achieved over the last 10 years. There have been some areas of improvement with increases in active transport in and out of Glasgow. For example, since 2009 trips into and out the city centre by bike have increased by 110% and pedestrian trips into the city centre have increased by 19%.

Glasgow is relatively well served by public transport with rail, subway and bus services. Glasgow has begun the move towards a Low Emission Zone which will enforce all vehicles entering the city centre meeting required emission standards. It is hoped that these initiatives will encourage public transport use and active travel. An Active Travel Strategy (Glasgow City Council, 2021) is being developed with the aim of shifting travel modes to walking, wheeling and cycling. The strategy acknowledges that city streets and spaces need to be improved to allow children to travel safely. School Car Free Zones have been introduced as a pilot project with most vehicles prohibited from driving on roads around schools.

Despite the concerns about community safety outlined above, progress has been made in this area in the last decade, with recorded crimes 35% lower in 2018/19 compared with the 10 years before that (Understanding Glasgow, 2021c). Partners have worked together to find innovative ways to reduce crime within the city.

Another important area where Glasgow is in a strong position is access to green space. Glasgow is home to over 90 parks and gardens. These provide safe spaces for families to participate in physical activity. Evidence suggests that access to green space is related to increased physical activity, lower television watching time, BMI and obesity in children (Jia et al., 2021). The challenge is to ensure that barriers to access for those living in the areas of high deprivation are reduced.

3. The Way Forward

3.1 Systems level change

As described above, an area of public health such as obesity has multiple causes and solutions. Public Health England, a former Government health agency, commissioned a guide to support local authorities in England and the wider UK to tackle obesity in their areas (Public Health England, 2021c). In contrast to the criticisms of obesity being 'too complex' a problem to address, this is a step-by-step guide that local authorities can use to begin to understand the complex system in which childhood obesity is experienced in their local communities. A key component is building ownership of the issue amongst the range of stakeholders who have the power to make a difference. Action planning is also central, whilst at the same time building on existing initiatives in local areas. Unlike many other approaches to change, a systems approach requires a long-term commitment. This is essential to tackle obesity. The Scottish Government and other agencies are supporting three Early Adopter areas (North Ayrshire, Dundee and the East Region) who are currently involved in a pilot to address obesity using a whole systems approach (Obesity Action Scotland, 2021). There is some evidence that systems approaches can support action to reduce obesity, however, this is a new area for policy and practice and more evaluation is needed (Bagnall et al., 2019).

3.2 Creating sustainable environments to reduce childhood obesity

School meals

There are numerous ways in which environments can be shaped to reduce childhood obesity. One important area is public sector food provision (Department for Environment Food & Rural Affairs, 2014; Dimbleby, 2021; Scottish Government, 2014). It offers the opportunity to influence both consumption and production to positively impact both health, the environment, and local economies. Some local authorities have already had success in switching to more sustainable procurement (Social Association Scotland, 2021). Glasgow provides 13 million school meals (Boyle et al.), highlighting cities' substantial purchasing power in this area. This will increase further in Scotland as universal free school meals are expanded to all primary school children. Policy recommendations for the same provision have also been made in England (Dimbleby, 2021).

Planning restrictions

Changes to the quality of food provided in school may increase uptake beyond primary school. Other actions are being put in place to address the food environment surrounding schools. These include using the planning system to reject applications for unhealthy food outlets that are too close to schools and other areas where children spend time (Keeble et al., 2019). Further work is being carried out in Scotland to examine the potential for using the planning system in this way (Scottish Government, 2018).

Marketing curbs

Other policy areas that seek to improve children's food environments involve reducing the impact of marketing of less healthy foods to children. The UK Government will implement further restrictions on broadcast and online advertising of unhealthy products in 2022. It is possible that advertisers may shift focus to areas not included in these restrictions, such as outdoor advertising locations. Currently, this is covered by self-regulation by industry that

advise media owners to ensure advertisements are 'reasonably placed' in areas that have more than 25% under-16. This is an area that will need to be monitored to ensure that children are not exposed to more unhealthy advertising in their neighbourhoods. In April 2022, new rules will come into place that will ban food and drink retailers from offering promotions related to volume, such as, 'buy-one-get-one-free' or '3 for 2' on less healthy products. Such promotions lead to consumers buying 20% more than they originally intended (Public Health England, 2020). There will also be restrictions on the location of these products, including at store entrances, aisle ends and checkouts and their online equivalents. It is estimated that 43% of all food and drink products located in these areas are for food and drinks high in sugar (Obesity Health Alliance, 2018). The impact of these new policies will be monitored to determine whether they are likely to impact on childhood obesity in the longer term.

Further Readings and E-learning Materials

Readings

National Audit Office (2020) Childhood Obesity Report - Summary – Page 5-12 https://www.nao.org.uk/wp-content/uploads/2020/09/childhood-obesity.pdf

Royal College of Paediatrics and Child Health (2021) Healthy Weight https://stateofchildhealth.rcpch.ac.uk/evidence/prevention-of-ill-health/healthy-weight/

UK Parliament POST Note (2021) Childhood Obesity https://researchbriefings.files.parliament.uk/documents/POST-PN-0640/POST-PN-0640.pdf

Websites

https://www.glasgow.gov.uk/activetravel

https://www.glasgow.gov.uk/article/18856/Physical-Education-Physical-Activity-and-School-Sport

https://www.glasgow.gov.uk/article/18856/Physical-Education-Physical-Activity-and-School-Sport

http://goodfoodforall.co.uk/home/glasgow-city-food-plan

Videos

Glasgow's Low Emission Zone 2021 (3:24) https://www.youtube.com/watch?v=x-2zdaGvqy8&t=13s
The Glasgow City Food Plan 2021 (1:15) https://www.youtube.com/watch?v=G06icG9wwTw

ITV News 2018 – Childhood obesity is the biggest issue of our time https://www.youtube.com/watch?v=R0KcDYlg5no

BBC Stories (2018) Scotland fights child obesity in a simple and effective way (2:47) https://www.youtube.com/watch?v=V0RahcsF4aI

UK Health Security Agency 2019 Whole systems approach to obesity (2:17) https://www.youtube.com/watch?v=SLu9AOpfsjs

UK Health Security Agency (2017) Health Matters – Obesity and the food environment (3:24) https://www.youtube.com/watch?v=Dr739IGryyk

UK Health Security Agency (2015) Childhood Obesity (2:25) https://www.youtube.com/watch?v=zUpR-3cghjo

UNICEF (2019) Overcoming obesity in the UK (1:00) https://www.youtube.com/watch?v=DSXtW2OdVR0

BBC News (2020) – Obesity plan to end unhealthy "buy one get one free" offers in England (5:10) https://www.youtube.com/watch?v=5UWerdZ-g1s

Podcasts

The Guardian (2020) How did Britain get so overweight? (28:57) https://www.theguardian.com/news/audio/2020/jul/30/how-did-britain-get-so-overweight-podcast

The Health Foundation (2021) We are what we eat: Food, health and inequality (35:28) https://www.health.org.uk/news-and-comment/podcast/episode-11-we-are-what-we-eat-food-health-inequality

The Health Foundation (2020) What should nanny do next? The government and obesity (31:26) https://www.health.org.uk/news-and-comment/podcast/episode-02-the-government-and-obesity

Feel Better Live More Podcast How to reverse childhood obesity with Kim Roberts https://drchatterjee.com/how-to-reverse-childhood-obesity-with-kim-roberts/

The Food Foundation (2021) Free School Meals and why they matter (25:42) https://foodfoundation.org.uk/podcast/free-school-meals-and-why-they-matter

The Food Foundation (2021) Messaging for food (21:11) https://foodfoundation.org.uk/podcast/messaging-good

The Food Foundation (2021) National Food Strategy youth consultation – Part 1 (22:55) https://foodfoundation.org.uk/podcast/special-national-food-strategy-youth-consultation

The Food Foundation (2021) National Food Strategy youth consultation – Part 2 (33:34) https://foodfoundation.org.uk/podcast/special-national-food-strategy-youth-consultation-2

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About the Author

Dr. Stephanie CHAMBERS
Lecturer, Sociology of Health and Wellbeing
University of Glasgow, United Kingdom

Dr Stephanie Chambers is an interdisciplinary researcher with expertise in public policy and health. She is a Lecturer in the Sociology of Health and Wellbeing at the University of Glasgow, Scotland. She has a BA in English and Politics and an MSc in Public Policy from the University of Strathclyde and a PhD in Food Policy from the University of Reading. She has held two prestigious postdoctoral fellowships funded by the Chief Scientist Office of the Scottish Government and Medical Research Council/University of Glasgow. Her research seeks to improve health and wellbeing in children, particularly around diet and obesity. She has designed and evaluated interventions and policies to improve children's dietary intakes. She has also carried out systematic reviews on some of the influences on children's diets, including family and food advertising. She has methodological expertise in qualitative methods, systematic reviews, process evaluation and research with children and young people.