

TRANSFORMING UK FOOD SYSTEMS FOR HEALTHY PEOPLE AND A HEALTHY ENVIRONMENT (TUKFS) - WRITTEN EVIDENCE (FDO0115)

This evidence is submitted by members of the 'Transforming UK Food Systems for Healthy People and a Healthy Environment' (TUKFS) research community¹. TUKFS is a £47.5M programme supported by UKRI's strategic priorities fund (2020-2026), in partnership with the Global Food Security Programme, BBSRC, ESRC, MRC, NERC, Defra, DHSC, OHID, Innovate UK and FSA². Our submission constitutes a response to selected questions within the call for evidence related to the role of our food system on diet and health outcomes.

Summary

- The rising cost of healthier food creates a food-insecure environment, not related to access to food, but rather, access to affordable and healthy food. This may help to explain why promoting better dietary choices has limited impact for citizens living in circumstances characterised by constrained choice.
- Stigma attached to poverty can indirectly influence diet quality. This can manifest itself structurally (food policies and neighbourhood infrastructure that limit access to healthy foods) and individually (prejudice and discrimination translating into psychological stress that leads to less healthy eating behaviours).
- Childhood obesity significantly impacts both physical and psychological health and well-being. Consequently, children living with obesity are more likely to have reduced scholastic attendance and achievement as well as increased presentation to health services compared to healthy weight peers.
- Food insecure mothers who struggle to breast feed exclusively for the first six months relate their constrained diets to their experience of insufficient breastmilk volume and concerns about the quality of their breast milk.
- Many consumers do not understand what processing means – they tend to both over- and underestimate the degree of processing in various food products. Similarly only 10% of consumers claimed to understand the term HFSS.
- Consumers who generally make healthier food choices are more likely to avoid processed foods (77% vs 23%). Processing is not front of mind for most consumers when making food choices, the primary motivation for eating UPF are their convenience, price and taste.

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² [Transforming UK Food Systems](#)

- Concerns raised about the accuracy and clarity of product information (e.g. for characteristics such as healthfulness) may indicate a role for policymakers and regulators in helping to maintain trust across the food industry.
- Retailers can provide insights into current consumption patterns. Such data can be used to evaluate the impact of changes to the food environment, either via retailer interventions or Government policy.
- Targeting specific demographic groups has been found to be effective at promoting healthier dietary behaviours (e.g. Sainsbury's top-up voucher initiative for customers receiving healthy start vouchers)
- Policies aimed at reducing obesity often rely on individuals to make behaviour changes rather than adopting a whole systems approach and are consequently ineffective and inequitable.
- Nationally, there is a need for comprehensive legislative reforms to ensure that food promotions are shifted in favour of health. Alternative approaches that reduce the cost of healthier foods relative to HFSS products should also be considered to avoid over purchasing.

Q2 The primary drivers of obesity both amongst the general population and amongst distinct population and demographic groups.

1. We have focussed our response to this question on the primary drivers of obesity in the context of food insecurity. **It is an apparent paradox that along with increasing rates of food insecurity we also observe an increasing prevalence of obesity** – a link that may appear self-contradictory to the general public³. However, the intersection between low income and obesity is more complex than simply the “energy in–energy out” concept and is not easy to reconcile. Food insecurity, like obesity, is a multifactorial phenomenon that encompasses qualitative, psychological, and social dimensions⁴.

Economic drivers:

2. **In the UK, healthier foods are three times more expensive per calorie than unhealthy foods⁵**, with a similar trend observed in the United States⁶. When viewed alternatively by portion size, after adjustment for energy, sources of protein, fibre, vitamins, and minerals have been associated with higher prices per 100 g compared to food sources of carbohydrates, sugar and fats⁶. As a result, the dietary choices of those on the lowest incomes are often limited to a low-price, high-energy combination, which, in the long term, can promote weight gain, especially when combined with a sedentary lifestyle⁷.

³ Dinour, L. M., Bergen, D., & Yeh, M. C. (2007). The food insecurity–obesity paradox: a review of the literature and the role food stamps may play. *J Am Diet Assoc.* 107(11), 1952-1961.

⁴ Loopstra R. (2018). Interventions to address household food insecurity in high-income countries. *Proc Nutr Soc*, 77(3), 270-281. <https://doi.org/10.1017/S002966511800006X>

⁵ The Food Foundation. *The Broken Plate 2022*. Published July 19, 2022. Accessed November 11, 2022. <https://foodfoundation.org.uk/publication/broken-plate-2022>

⁶ Drewnowski A. (2010) The cost of US foods as related to their nutritive value. *Am J Clin Nutr*, 92(5). <https://doi.org/10.3945/ajcn.2010.29300>

⁷ Eskandari, F., Lake, A., Rose, K., Butler, M., O'Malley, C. (2020). A mixed-method systematic review and meta-analysis of the influences of food environments and food insecurity on obesity in high-income countries. *Food Sci Nutr*, 10, 3689-3723. <https://doi.org/10.1002/fsn3.2969>

3. Food insecurity is defined as “*the lack of secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life*”⁸. **For people living with obesity, the rising cost of healthier food creates a food-insecure environment, not related to access to food, but rather, access to affordable and healthy food.** The scale of the problem is dynamic, with a sharp increase in food insecurity since the COVID-19 pandemic. In September 2022, 25% of households with children were reported as being food insecure⁹. This is a staggering 2.5-fold increase in the number of households experiencing food insecurity since January 2021⁹. The consequences for families on low income, are that the poorest fifth of the UK population need to spend 47% of their disposable income to consume a healthy diet according to the Eatwell Guide, in contrast to 11% needed by the richest fifth in the UK⁵.
4. As part of the TUKFS H3 project, researchers are developing methods to increase fibre intake in low-income populations. The benefits of fibre intake on non-communicable disease risk are well documented, including reducing type II diabetes and obesity risk^{10 11 12}. However, despite decades of public health campaigns and dietary recommendations, the UK population seem resistant to increasing fibre levels¹³, and low-income populations have the lowest fibre intake of all¹⁴. This suggests that **promoting better dietary choices has limited impact for citizens living in circumstances characterised by constrained choice.**

Psychological drivers:

5. Living with low income often incurs greater experiences of emotional distress, which has been found to increase the consumption of palatable foods as a form of coping¹⁵. Experiences of distress and mental ill-health may play a pivotal role in the relationship between food insecurity and diet quality for people living with obesity. **The risk of the co-occurrence of obesity with mood disorders (e.g. depression or anxiety) has been estimated to be**

⁸ FAO, IFAD, WFP and WHO. (2017). The State of Food Security and Nutrition in the World. FAO. <https://www.fao.org/3/i7695e/i7695e.pdf>

⁹ The Food Foundation. Food insecurity tracking. Accessed November 11, 2022. <https://www.foodfoundation.org.uk/initiatives/food-insecurity-tracking>

¹⁰ Reynolds, A., et al. (2019). Carbohydrate quality and human health: a series of systematic reviews and meta-analyses. *The Lancet*, Volume 393, Issue 10170, 434 - 445. [https://doi.org/10.1016/S0140-6736\(18\)31809-9](https://doi.org/10.1016/S0140-6736(18)31809-9)

¹¹ Dayib, M., Larson, J., Slavin, J. Dietary fibers reduce obesity-related disorders: mechanisms of action. *Curr Opin Clin Nutr Metab Care*. 2020 Nov;23(6):445-450. <https://doi.org/10.1097/MCO.0000000000000696>

¹² Waddell, I. S., & Orfila, C. (2023). Dietary fiber in the prevention of obesity and obesity-related chronic diseases: From epidemiological evidence to potential molecular mechanisms. *Critical Reviews in Food Science and Nutrition*, 63(27), 8752–8767. <https://doi.org/10.1080/10408398.2022.2061909>

¹³ Gressier, M., Frost, G. Minor changes in fibre intake in the UK population between 2008/2009 and 2016/2017. *Eur J Clin Nutr* 76, 322–327 (2022). <https://doi.org/10.1038/s41430-021-00933-2>

¹⁴ Boyle N.B., et al. Increasing fibre intake in the UK: lessons from the Danish Whole Grain Partnership. *Br J Nutr*. 2024 Feb 28;131(4):672-685. <https://doi.org/10.1017/S0007114523002106>

¹⁵ Keenan G.S., Christiansen P., Hardman C.A. Household Food Insecurity, Diet Quality, and Obesity: An Explanatory Model. *Obesity (Silver Spring)*. 2021 Jan;29(1):143-149. <https://doi.org/10.1002/oby.23033>

nearly five times higher among people with low socioeconomic status, in comparison to those with higher socioeconomic status¹⁶. This is supported by data from the latest Great Britain Census 2022, which found that adults with moderate-to-severe depressive symptoms had higher odds of food insecurity (3.1 higher odds) compared to those with no-to-mild depressive symptoms¹⁷.

6. Research conducted by Stone et al.¹⁸ as part of the Food Insecurity in people living with Obesity (FIO Food) project, found that food insecurity was indirectly associated with poorer diet quality via greater experiences of stigma from being food insecure. This suggests that **stigma is a key social determinant for health and dietary inequalities**. According to The Stigma and Food Inequity Conceptual Framework¹⁹, poverty is a source of stigma that can manifest at both the structural level (e.g., food policy, neighbourhood infrastructure) and the individual level (e.g., prejudice, discrimination). Structural manifestations may translate into limited access to healthy food, and individual manifestations of stigma may translate into psychological stress which may lead individuals to engage in less healthy eating behaviours (e.g., eating unhealthy food to 'cope', and potentially "fast shopping practices" to minimise shopping time²⁰).

Social drivers:

7. The **Priority Places for Food Index (PPFI) highlights that contributors to food insecurity risk at a neighbourhood-level are highly context-specific and geographically dispersed**. The PPFI, developed by Professor Michelle Morris, Dr Pete Baudains and Dr Fran Pontin in collaboration with Which?, is a composite index formed of data compiled across seven different dimensions relating to food insecurity for the four nations in the UK. It identifies food insecurity risk contributors from seven domains, which broadly cover access to food provision and economic barriers to purchasing healthy nutritious foods, demonstrating an interplay between local food environments and economic circumstances. **The PPFI serves to illustrate the complexity of tackling such an issue, which is likely to require localised solutions as well as a localised view on national solutions**.
8. It is important to note the existence of intersectional factors such as age, ethnicity and gender that are likely to be important modulators of the

¹⁶ Kivimäki, M., Batty, G.D., Pentti, J. et al. (2020). Association between socioeconomic status and the development of mental and physical health conditions in adulthood: a multi-cohort study. *Lancet Public Health*, 5, e140–e149. [https://doi.org/10.1016/S2468-2667\(19\)30248-8](https://doi.org/10.1016/S2468-2667(19)30248-8)

¹⁷ ONS. (2023). Characteristics of adults experiencing energy and food insecurity in Great Britain: 22 November to 18 December 2022. Accessed June 2023. <https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/articles/characteristics-of-adults-experiencing-energy-and-food-insecurity-great-britain/latest>

¹⁸ Stone, R. A., Christiansen, P., Johnstone, A., Brown, A., Douglas, F., & Hardman, C. (2023, December 20). Understanding the barriers to purchasing healthier, more sustainable food for people living with obesity and food insecurity. <https://doi.org/10.31219/osf.io/3xe7w>

¹⁹ Earnshaw, V. A., & Karpyn, A. (2020). Understanding stigma and food inequity: a conceptual framework to inform research, intervention, and policy. *Translational Behavioral Medicine*, 10(6), 1350-1357. <https://doi.org/10.1093/tbm/ibaa087>

²⁰ Gombert, K., D.F., C.S. & M.K. (2017). Contradictions between wanting to and being able to practice food shopping: the experiences of "vulnerable" young people in the North East of Scotland. *GJHSS: H interdisc.* 17(6).

relationship between food insecurity and obesity risk. Specific ethnicities are more likely to experience food insecurity²¹, are more likely to be living with obesity²², and have a greater propensity for developing diet related health problems²³. Drivers of obesity are complex and multifaceted, but we do not all start at the same point on the road.

9. Social bias and discrimination experienced by people living with obesity and food insecurity mean that the orthodox solution of “eating less” and “exercising more” is a repressive solution²⁴. To ensure the promotion of food equity, **policymakers should prioritise addressing the underlying structural manifestations of stigma to support people living with obesity and food insecurity to purchase healthy and sustainable food**, which in turn may also reduce individual manifestations of stigma and further support improvements in diet quality for this group²⁵. Evidence-based solutions are needed to support the recommendations laid out in Dimbleby’s National Food Strategy Independent Review (2021) to “deliver safe, healthy, affordable food, regardless of where people live or how much they earn”.

Q3 The impacts of obesity on health, including on children and adolescent health outcomes.

10. The World Health Organisation is clear that carrying extra fat leads to serious health consequences²⁶. Individuals who have overweight or obesity are at greater risk from a number of health conditions compared to healthy weight individuals: all-causes of death; hypertension; dyslipidemia; type 2 diabetes; coronary heart disease; stroke; gallbladder disease; osteoarthritis; sleep apnea and breathing problems; many types of cancer; low quality of life; mental illness such as clinical depression, anxiety, and other mental disorders; body pain and difficulty with physical functioning^{27 28 29 30 31 32}.

²¹ Department for Work and Pensions (DWP), released 21 March 2024. Family Resources Survey: financial year 2022 to 2023. Accessed 04/04/2024. Retrieved from: <https://www.gov.uk/government/statistics/family-resources-survey-financial-year-2022-to-2023>

²² Office for Health Improvement and Disparities. (2023). Overweight adults. Accessed 04/04/2024. Retrieved from: [https://www.ethnicity-facts-figures.service.gov.uk/health/diet-and-exercise/overweight-adults/latest/#:~:text=white%20British%20adults%20were%20more,mixed%20\(59.5%25\)%20ethnic%20groups](https://www.ethnicity-facts-figures.service.gov.uk/health/diet-and-exercise/overweight-adults/latest/#:~:text=white%20British%20adults%20were%20more,mixed%20(59.5%25)%20ethnic%20groups)

²³ Farmaki, A.E., et al. Type 2 diabetes risks and determinants in second-generation migrants and mixed ethnicity people of South Asian and African Caribbean descent in the UK. *Diabetologia*. 2022 Jan;65(1):113-127. <https://doi.org/10.1007/s00125-021-05580-7>

²⁴ Brown, A., Flint, S.W., Batterham, R.L. (2022). Pervasiveness, impact and implications of weight stigma. *EClinicalMedicine*, 47, 101408. <https://doi.org/10.1016/j.eclinm.2022.101408>

²⁵ Stone, R. A., et al. (2023, December 20). Understanding the barriers to purchasing healthier, more sustainable food for people living with obesity and food insecurity. <https://doi.org/10.31219/osf.io/3xe7w>

²⁶ WHO. (2024). Obesity: Health consequences of being overweight. Accessed 04/04/2024. Retrieved from: <https://www.who.int/news-room/questions-and-answers/item/obesity-health-consequences-of-being-overweight#:~:text=Being%20overweight%20or%20obese%20can,endometrial%2C%20breast%20and%20colon>

²⁷ NHLBI (2013). Managing Overweight and Obesity in Adults: Systematic Evidence Review from the Obesity Expert

11. Childhood obesity significantly impacts both physical and psychological health and well-being. Living with obesity in childhood is associated with multiple conditions including non-insulin-dependent diabetes³³, metabolic syndrome³⁴, asthma³⁵, non-alcoholic fatty liver disease³⁶, and orthopaedic complications³⁷. Living with obesity in childhood and adolescence also has profound adverse psychosocial consequences, with reduced quality of life³⁸, increased risk of depression, emotional and behavioural disorders, and low self-esteem³⁹. This is compounded by being more likely to experience multiple associated psychosocial problems, including stigma and bullying³⁹. **These factors likely combine to contribute to reduced scholastic attendance and achievement⁴⁰, and evidence of increased**

Panel. <https://www.nhlbi.nih.gov/sites/default/files/media/docs/obesity-evidence-review.pdf>

²⁸ Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults – The Evidence Report. National Institutes of Health. *Obes Res*. 1998 Sep;6 Suppl 2:51S-209S.

²⁹ Bhaskaran, K., et al. (2014) Body-mass index and risk of 22 specific cancers: a population-based cohort study of 5.24 million UK adults. *Lancet*. Aug 30;384(9945):755-65 [https://doi.org/10.1016/S0140-6736\(14\)60892-8](https://doi.org/10.1016/S0140-6736(14)60892-8)

³⁰ Kasen S, Cohen P, Chen H, Must A. Obesity and psychopathology in women: a three decade prospective study. *Int J Obes (Lond)*. 2008 Mar;32(3):558-66. <https://doi.org/10.1038/sj.ijo.0803736>

³¹ Luppino, F.S., et al. Overweight, obesity, and depression: a systematic review and meta-analysis of longitudinal studies. *Arch Gen Psychiatry*. 2010 Mar;67(3):220-9. <https://doi.org/10.1001/archgenpsychiatry.2010.2>

³² Roberts RE, Deleger S, Strawbridge WJ, Kaplan GA. Prospective association between obesity and depression: evidence from the Alameda County Study. *Int J Obes Relat Metab Disord*. 2003 Apr;27(4):514-21. <https://doi.org/10.1038/sj.ijo.0802204>

³³ Type 2 diabetes in children and adolescents. American Diabetes Association. *Diabetes Care*. 2000 Mar;23(3):381-9

³⁴ Weiss R, Bremer AA, Lustig RH. What is metabolic syndrome, and why are children getting it? *Ann N Y Acad Sci*. 2013 Apr;1281(1):123-40.

³⁵ Lang JE. Obesity, Nutrition, and Asthma in Children. *Pediatr Allergy Immunol Pulmonol*. 2012 Jun;25(2):64-75.

³⁶ Alfani R, Vassallo E, De Anseris AG, Nazzaro L, D'Acunzo I, Porfito C, Mandato C, Vajro P. Pediatric Fatty Liver and Obesity: Not Always Just a Matter of Non-Alcoholic Fatty Liver Disease. *Children (Basel)*. 2018 Dec 13;5(12)

³⁷ Wills M. Orthopedic complications of childhood obesity. *Pediatr Phys Ther*. 2004 Winter;16(4):230-5.

³⁸ Buttitta, M., Iliescu, C., Rousseau, A. & Guerrien, A. Quality of life in overweight and obese children and adolescents: a literature review. *Qual. Life Res*. 23, 1117–1139 (2014).

³⁹ Rankin J, Matthews L, Cobley S, Han A, Sanders R, Wiltshire HD, Baker JS. Psychological consequences of childhood obesity: psychiatric comorbidity and prevention. *Adolesc Health Med Ther*. 2016;7:125-146

⁴⁰ OECD (2019), *The Heavy Burden of Obesity: The Economics of Prevention*, (chapter 4: The relationship between childhood obesity and educational outcomes). OECD Health Policy Studies, OECD Publishing, Paris, <https://doi.org/10.1787/67450d67-en>.

presentation to health services for children living with obesity⁴¹, compared to healthy weight peers.

Q4 The influence of pre- and post-natal nutrition on the risk of subsequent obesity, and the specific influences on the diet of children and adolescents that contribute to the risk of becoming obese.

13. Nutritional influences during early life, including during pregnancy, can have an effect on health and well-being into adulthood^{42, 43} and there is growing recognition of the importance of epigenetic pathways in relation to *in utero*/early life stress exposures and metabolic disease and obesity. Paternal obesity is also associated with childhood obesity⁴⁴ (REF). Wilkins *et al.* noted that 'where poor *in utero* nutrition is combined with later life exposure to obesogenic environments, the effects in terms of offspring's non-communicable disease risk factors and outcomes are likely to be most severe'⁴³.
14. For infants aged 0-6 months, the World Health Organisation and UNICEF recommend: "Exclusive breastfeeding, without any additional food or fluids", with continued breastfeeding alongside complimentary food for up to two years of age⁴⁵. However, research suggests that some food insecure mothers struggle to meet these recommendations. In one study of infant feeding practices, the authors recorded food insecure mothers' experiences of insufficient breastmilk volume and personal concerns about the nutritional quality of their breastmilk in relation to the highly constrained quantity and quality of food they were eating⁴⁶.
15. The cost of infant formula has grown exponentially in the last 18 months⁴⁷ and there is emerging evidence that food insecure families are struggling to afford infant formula in the UK⁴⁸. This should be of significant public health

⁴¹ Hayes, A. et al. Early childhood obesity: association with healthcare expenditure in Australia. *Obesity* 24, 1752–1758 (2016).

⁴² Langley-Evans, S. C. (2015). Nutrition in early life and the programming of adult disease: a review. *J Hum Nutr Diet*, 28, 1-14. <https://doi.org/10.1111/jhn.12212>

⁴³ Wilkins, E., Wickramasinghe, K., Pullar, J., Demaio, A. R., Roberts, N., Perez-Blanco, K. M., ... & Townsend, N. (2021). Maternal nutrition and its intergenerational links to non-communicable disease metabolic risk factors: a systematic review and narrative synthesis. *Journal of Health, Population and Nutrition*, 40(1), 1-11. <https://doi.org/10.1186/s41043-021-00241-2>

⁴⁴ Larqué, E. et al. From conception to infancy – early risk factors for childhood obesity. *Nat. Rev. Endocrinol.* 15, 456–478 (2019).

⁴⁵ UNICEF (2023). Supporting families with infants under 12 months experiencing food insecurity a guide for local authorities and health boards: UK Committee for UNICEF. Accessed 28th September 2023. <https://www.unicef.org.uk/babyfriendly/local-authorities-guide/>

⁴⁶ Kay, M. C., Cholera, R., Flower, K. B., Yin, H. S., Rothman, R. L., Sanders, L. M., Delamater, A. M., & Perrin, E. M. (2020). Are Low-Income, Diverse Mothers Able to Meet Breastfeeding Intentions After 2 Months of Breastfeeding? *Breastfeed Med*, 15(7), 435–442. <https://doi.org/10.1089/bfm.2020.0025>

⁴⁷ First Steps Nutrition (2022). Costs of infant formula, follow-on formula and milks marketed as foods for special medical purposes available over the counter in the UK: First Steps Nutrition Trust. Accessed 28th September 2023. <https://infantmilkinfo.org/costs/>

⁴⁸ Feed (2022). Feed Inquiry. Accessed 28 September 2023. <https://www.feeduk.org/formulaisfood-inquiry22>

concern, with pressure to access infant formula also impacting negatively on maternal mental health for families struggling with the costs of living^{48 49}. While UNICEF guidelines recommend against the direct provision of infant formula through food and baby banks⁴⁵, there are now a reported 250 baby banks across England in an effort to mitigate against increasing levels of infant food insecurity⁵⁰.

16. In response to the increasing number of UK babies and young children at risk of malnourishment in low-income households, The Food Foundation recently published the following recommendations for Government⁵⁰:

- Introduce pricing policies that ensure infant formula is affordable for those that need it
- Improved communication and information about the nutritional comparability of first infant formula to parents

17. A recent scoping review of the factors associated with food insecurity among pregnant women and caregivers of children aged 0-6 months indicated a lack of qualitative evidence around the lived experience of maternal and infant food insecurity⁵¹. **Furthering our understanding of the lived experience within this context is vitally important, to help inform interventions and policy.** The UKRI-funded Diet and Health Inequalities (DIO Food) project is capturing parents' and carers' perceptions of the relationship between the current food system and other influences impacting infant feeding practice, associated with the current cost of living crisis, with findings due to be made available later in 2024 (please see the study Open Science Framework registration [here](#)).

18. In the UK, nine million children attend school where they eat 30% to 50% of their daily food⁵². Despite recommendations that over a third of our diet should come from fruit & vegetables, almost a third of primary school children eat less than one portion of vegetables per day^{52 53}. The quality of those vegetables eaten by children is also concerning with more than one third of vegetables consumed by children being processed and 17% coming from pizza and baked beans⁵⁴. A typical catering budget for school food is currently just 60p per pupil with quality and nutrition often neglected in favour of lower cost alternatives^{54 55}

⁴⁹ Scott, S. F. (2022). Understanding the Individual Narratives of Women Who Use Formula in Relation to the Master Narrative of "Breast Is Best". Indiana University-Purdue University Indianapolis. <http://dx.doi.org/10.7912/C2/2940>

⁵⁰ The Food Foundation (2024). Kids Food Guarantee: First Infant Formula February 2024 update. Accessed 27 March 2024. <https://foodfoundation.org.uk/publication/kids-food-guarantee-first-infant-formula-february-2024-update#:~:text=As%20part%20of%20the%20Kid's,tracking%20prices%20to%20monitor%20performance>

⁵¹ Bastian, A., Parks, C., Yaroch, A., McKay, F. H., Stern, K., van der Pligt, P., ... & Lindberg, R. (2022). Factors associated with food insecurity among pregnant women and caregivers of children aged 0–6 years: A scoping review. *Nutrients*, 14(12), 2407. <https://doi.org/10.3390/nu14122407>

⁵² The Food Foundation (2021) Peas Please School Food Report. [Online] Available at <https://foodfoundation.org.uk/sites/default/files/2021-10/Peas-Please-School-Food-Report-2021.pdf>

⁵³ Public Health England (2018). The Eatwell Guide. [Online]. Available at https://assets.publishing.service.gov.uk/media/5bbb790de5274a22415d7fee/Eatwell_guide_colour_edition.pdf

⁵⁴ Soil Association (2018). State of the Nation: Children's Food in England. [Online] Available at <https://www.foodforlife.org.uk/~/media/files/policyreports/state-of-the-nation-soil-association-report.pdf>

. Foods high in salt, refined carbohydrates, sugar and fats and low in fibre now makes up 72.6% of calories in primary school lunches⁵⁶. Given the crucial role that food plays in current and future health projections of children, it is critical that school food is appealing, nutritious and meets the dietary needs of children in the UK. While UK schools are legally required to meet certain nutritional standards, there is no requirement or transparent monitoring of compliance levels.

Q6 How consumers can recognise UPF and HFSS foods, including the role of labelling, packaging and advertising.

19. Research shows that consumers tend to both over- and underestimate the degree of processing in various food products⁵⁷ ⁵⁸. In a pan-European study⁵⁹, energy drinks were the item most often correctly categorised as ultra-processed, by over half of European consumers (61%). The second most correctly identified categorisation is for raw eggs as unprocessed. (59%). However, another 41% classify eggs as having gone through at least basic processing. Other unprocessed or minimally processed foods tend to be generally estimated as more processed than they are by about three quarters of consumers (coffee beans, raw chicken pieces, milk). Cheese is correctly identified as a moderately processed food by 39% of Europeans, while it is identified as a UPF by 16%. Finally, one in ten (9%) believe that cheese is unprocessed or minimally processed. This study is supported by a wider body of evidence indicating that **a substantial number of consumers do not completely understand what processing means and the different gradations it can have.**
20. While two thirds of Europeans (67%) say they do not like unknown ingredients in their food, slightly over half (56%) try to avoid processed foods. Europeans who generally make healthier food choices are much more likely to avoid them (77% vs 23%). There is a group of consumers who may not like these ingredients in theory but does not put effort into avoiding them. The primary motivation for eating UPF are their convenience, price and taste⁵⁹.
21. Similarly, research by the Institute of Grocery Distribution (IGD) on consumer awareness, understanding and perceptions of ultra-processed food⁶⁰ found that:

⁵⁵ EFRA (2021). Public Sector Procurement of Food – Environment, Food and Rural Affairs Committee – House of Commons. [Online] Available at:

<https://publications.parliament.uk/pa/cm5801/cmselect/cmenvfru/469/46906.htm>

⁵⁶ Parnham, J.C., Millett, C. and Vamos, E. P. (2023) School meals in the UK: ultra processed, unequal and inadequate. Public Health Nutrition, 26 (1), pp. 297-301

<https://doi.org/10.1017/s1368980022002336>

⁵⁷ Ares, G., et al. (2016) Consumers' conceptualization of ultra-processed foods. Appetite, 105, pp611-617,

<https://doi.org/10.1016/j.appet.2016.06.028>

⁵⁸ Aguirre, A., et al. Exploring the understanding of the term "ultra-processed foods" by young consumers (2019)

Food Research International. 115, pp535-540

<https://doi.org/10.1016/j.foodres.2018.09.059>

⁵⁹ EIT Food (2024) Consumer perceptions unwrapped: ultra-process foods (UPF). A pan-European study from the EIT Food Consumer Observatory on consumer perceptions of ultra processed foods. https://www.eitfood.eu/files/Consumer-Perceptions-Unwrapped_Consumer-Observatory-Report-1.pdf

- Processing is not front of mind when consumers are making food choices, only 1 in 10 respondents reported the 'amount of processing' is important when shopping.
 - 2 out of 5 consumers claim to understand the term 'ultra-processed'
 - Learning about which foods are ultra-processed evokes strong emotions and is confusing for consumers.
 - 3 out of 5 consumers say they plan to reduce consumption of UPF, but identify several barriers that prevent them from doing so including price, habit, shelf-life, preferences and preparation time.
22. Furthermore, as part of a consumer research project, IGD measured self-reported consumer awareness and understanding of several phrases, including HFSS. Results demonstrated that **25% of consumers were aware of the HFSS term, but only 10% claimed to understand it**⁶¹.
23. Restrictions on the placement of foods and drinks that are considered high in fat, salt and sugar came into force across England in October 2022 as part of the Government's Obesity plan. The legislation limited the types of products which can be placed in prominent areas of supermarkets, such as the ends of aisle, store entrance and checkouts. However, a study by the IGD in January 2023 found that, despite retailers implementing the legislation and some putting signage up to explain the changes, **66% of consumers hadn't noticed a difference in store**⁶².
24. Prior to implementation, research within *The Nutrition Bulletin's* virtual issue on 'Changing the Food Retail Environment' explored potential challenges of the HFSS legislation and the use of the Nutrient Profiling Model (NPM) to categorise products⁶² ⁶³. Concerns raised by food industry nutritionists included the reliance of retailers on manufacturers for accurate product information; how feasible or useful a clear-cut definition of a 'healthy' product would be across different categories; and discrepancies between the NPM model and UK dietary recommendations. To contribute to evidence-based policy going forward, the University of Leeds and IGD will be evaluating the impact of this legislation by working with multiple major retailers. Results are expected by the end of 2024. This research is part of the TUKFS-supported Diet and Health Inequalities (DIO Food) project.
25. Healthfulness, sustainability, authenticity and safety are credence characteristics of food, i.e., product characteristics which cannot be verified by the average consumer and which, therefore, need to be communicated by a credible food industry actor⁶⁴ ⁶⁵. Confusion around the communication of

⁶⁰ IGD (2023). Ultra-processed foods: a consumer perspective. Watford: IGD. Accessed March 25 2024. <https://www.igd.com/Social-impact/Health/Ultra-processedfoods-a-consumer-perspective>

⁶¹ IGD (2023). ShopperVista: Health, nutrition and ethics monthly shopper update. Watford: IGD. Accessed March 25 2024. <https://shoppervista.igd.com/macrotrends/>

⁶² Jenneson, V., et al (2020). Restricting promotions of 'less healthy' foods and beverages by price and location: A big data application of UK Nutrient Profiling Models to a retail product dataset. *Nutrition Bulletin*, 45(4), 389-402. <https://doi.org/10.1111/nbu.12468>

⁶³ Jenneson, V., & Morris, M. A. (2021). Data considerations for the success of policy to restrict in-store food promotions: A commentary from a food industry nutritionist consultation. *Nutrition Bulletin*, 46(1), 40-51. <https://doi.org/10.1111/nbu.12486>

⁶⁴ F. Fernqvist, L. Ekelund. (2014) Credence and the effect on consumer liking of food – a review *Food Qual. Prefer.*, 32, pp. 340-353, <https://doi.org/10.1016/j.foodqual.2013.10.005>

credence characteristics can erode trust in food system actors. This is important because a lack of trust in food chain actors most likely leads to a decline in consumer confidence in their ability to make informed food choices⁶⁶

26. Of all food and drink industry actors, trust in food manufacturers has consistently been shown, year on year, to have the most impact on consumer confidence⁶⁷. The authors relate this finding to the subjective importance of food processing practices for the perception of the food supply. Consumer confidence may gain additional relevance due to the upward trend in demands for food with specific processing characteristics, such as clean label food products, food with natural ingredients and food with sustainable packaging⁶⁸. **If manufacturers claims on their food products (e.g., for health, sustainability, authenticity) cannot be verified by the average consumer and are sometimes ambiguous, this can cause confusion**^{69 70}
27. A lack of trust and the ensuing lack of confidence is not only a problem for food chain actors trying to develop and market food products, it also poses a barrier for attempts to enact transformations of the food system that are widely believed to be necessary⁶⁷. The findings suggest that **policymakers and regulators need to improve certification and control measures to promote transparency and trust**, with the willing cooperation of supply chain actors, and in a coordinated manner to compensate for potential weaknesses among individual partners.

Q7 The cost and availability of a) UPF and b) HFSS foods and their impact on health outcomes

28. The evidence suggests that UPFs are generally less costly and higher in availability^{71 72}. It tends to be the case that consumers who spend less on

⁶⁵ W. Verbeke, P. Rutsaert, K. Bonne, I. Vermeir (2013). Credence quality coordination and consumers' willingness-to-pay for certified halal labelled meat. *Meat Sci.*, 95 (4) (2013), pp. 790-797 <https://doi.org/10.1016/j.meatsci.2013.04.042>

⁶⁶ De Jonge, J., et al. (2007). Understanding consumer confidence in the safety of food: Its two-dimensional structure and determinants. *Risk Anal.* 27 (3), pp. 729-740, <https://doi.org/10.1111/j.1539-6924.2007.00917>

⁶⁷ Macready, A.L., et al. Consumer trust in the food value chain and its impact on consumer confidence: A model for assessing consumer trust and evidence from a 5-country study in Europe. *Food Policy*, 92, <https://doi.org/10.1016/j.foodpol.2020.101880>

⁶⁸ https://www.eitfood.eu/files/Consumer-Perceptions-Unwrapped_Consumer-Observatory-Report-1.pdf

⁶⁹ Parkes, G. et al. Behind the signs—a global review of fish sustainability information schemes

Rev. Fish. Sci., 18 (2010), pp. 344-356 <https://doi.org/10.1080/10641262.2010.516374>

⁷⁰ M. Simeone, D. Scarpato, G. Rotondo (2015). Consumer attitudes to food labelling: opportunities for firms and implications for policy-makers. *Qual. – Access Success*, 16, pp. 312-319

food get more of their energy from UPFs (see our response to Q2). This seems to be driven by lower unit costs for UFPs and scale of production as well as greater convenience for consumers (UPFs tend to have longer shelf lives and are often in more convenient formats)⁷³. Public Health England has also provided strong evidence that the density of fast food outlets is higher in more deprived areas⁷⁴.

Q8 The role of the food and drink industry in driving food and diet trends and on the policymaking process.

22. Supermarkets play an important role as gatekeepers to population diets. However, only five of eleven UK supermarkets have set targets for healthy or healthier food sales, and only one supermarket has a public target to increase fruit and vegetable sales⁷⁵. **Disclosing data on the sales of healthy food and setting healthy sales targets are important as these provide insights into current consumption patterns.**
23. **Data can be used to evaluate the impact of changes to the food environment, either through retailer interventions or Government policy, as well as to better personalise customer solutions.** For example, Sainsbury's commissioned research with Savanta (2,991 Nectar card customers who volunteered to take part in a 15min survey and anonymously share their data, conducted in February 2023), to look at how customer attitudes on their purchases compared to their actual purchasing behaviours – the say-do intention gap. This work showed that customers were good at estimating their fruit and veg intakes but underestimated their discretionary food choices and carbohydrate intakes. These types of novel insights can be helpful in guiding collective action and were shared at a Parliamentary event in 2023.

⁷¹ Gupta S, Rose CM, Buszkiewicz J, et al. Characterising percentage energy from ultra-processed foods by participant demographics, diet quality and diet cost: findings from the Seattle Obesity Study (SOS) III. *British Journal of Nutrition*. 2021;126(5):773-781. <https://doi.org/10.1017/S0007114520004705>

⁷² Luiten CM, et al. Ultra-processed foods have the worst nutrient profile, yet they are the most available packaged products in a sample of New Zealand supermarkets. *Public Health Nutrition*. 2016;19(3):530-538. <https://doi.org/10.1017/S1368980015002177>

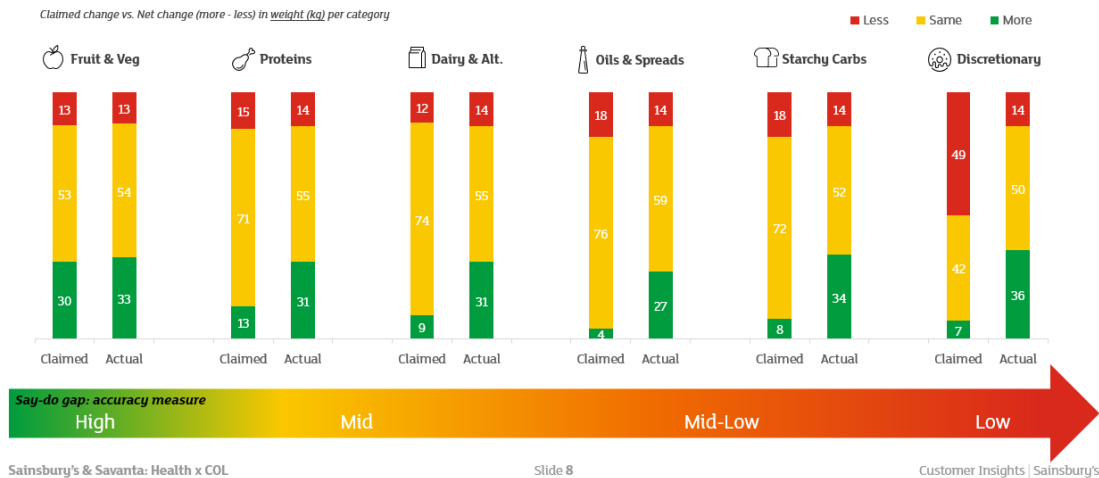
⁷³ Machado, P.P., et al. (2017) Price and convenience: The influence of supermarkets on consumption of ultra-processed foods and beverages in Brazil. *Appetite*. 116, pp381-388 <https://doi.org/10.1016/j.appet.2017.05.027>

⁷⁴ PHE (2018) Density of fast food outlets at 31/12/17. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/741555/Fast_Food_map.pdf

⁷⁵ The Food Foundation (2021) Plating Up Progress 2021. <https://foodfoundation.org.uk/publication/plating-progress-2021> (Accessed 26 May 2023)

CLAIMED VS. ACTUAL: Say-Do Gap & Health

Whilst shoppers are effective at estimating their F&V purchases, they're much less accurate when it comes to discretionary items



24. **Promoted foods account for approximately 34% of household food and drink expenditure**⁷⁶. Research by Kantar, on behalf of PHE, found that higher sugar food and drink items are more likely to be promoted. Several of the higher sugar food and drink categories were shown to represent more discretionary products, suggesting that promotions in these areas will more easily get shoppers to buy more than normal. Such buying patterns can encourage stockpiling, which can be a precursor to overconsumption and food wastage (if not consumed)⁷⁷.
25. **However, research has shown that incentivisation can also be a powerful lever of change, especially among lower socioeconomic groups**⁷⁸. When Sainsbury's lowered the prices of and promoted selected fruit and vegetables, a 78% uplift in sales of these items was observed during the 4-week trial period in January 2020 and a 56% uplift when it was rolled out for 4 weeks in January 2021⁷⁹. However, this uplift was not consistent across all products, and lower value or less familiar items like swede did not see any change in sales, which suggests that price is not the only barrier to making healthier choices.

⁷⁶ PHE. (2020) An analysis of the role of price promotions on the household purchases of food and drinks high in sugar, and purchases of food and drinks for out of home consumption.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/947412/Sugar_Reduction_analysis_of_price_promotions_on_the_household_purchases_of_food_and_drinks_high_in_sugar_4_.pdf

⁷⁷ Watt T, Beckert W, Smith R, Cornelsen L. The impact of price promotions on sales of unhealthy food and drink products in British retail stores. Health Econ. 2023 Jan;32(1):25-46. <https://doi.org/10.1002/hec.4607>

⁷⁸ Skeggs, H., & McHugh, L. (2023). Changing the retail food environment. Nutrition Bulletin, 48(4), 435-441. <https://doi.org/10.1111/nbu.12646>

⁷⁹ IGD. (2022). Healthy sustainable diets: driving change our second report on how the food industry can drive healthier and more sustainable diets in the UK. Watford: IGD. Accessed March 25 2024. <https://www.igd.com/articles/article-viewer/t/healthy-sustainable-diets-driving-change/i/30157>

26. Targeting specific demographic groups has been found to be effective at promoting healthier dietary behaviours when trialled in the UK. In 2021, Sainsbury's offered a £2 weekly top-up voucher for fresh, canned or frozen fruit and vegetables to customers who used Healthy Start Vouchers (HSV) in-store. The national analysis of Sainsbury's top-up voucher initiative by the University of Leeds found that **shoppers increased the number of fruit and vegetables purchased by an average of 13 or more portions per transaction** and their purchasing as a whole shifted towards the proportions of the Eatwell Guide⁷⁹. Specific analysis of the initiative in the Yorkshire and Humber region was able to use loyalty card data to follow households throughout the trial period. It showed that **low-income households who used at least one top-up voucher purchased 0.9 more portions of fruit and vegetables per household, per day**, less meat and fewer discretionary products [9]. These findings encouraged Sainsbury's to extend the top-up voucher scheme for a further 6 months in 2023 (for England, Wales and Northern Ireland), offering support to a potential half a million pregnant women and children⁸⁰.
27. **Removing less healthy options at checkouts may have an impact on sales, particularly for discretionary products.** Fildes et al. compared the purchasing of less healthy food before and after the implementation of a 'healthy check out' in Tesco Express stores where products high in fat, salt or sugar were removed from the in-queue areas. Even though the overall spend increased from 2014 to 2015 the proportion of **total spend on less healthy food decreased**, with confectionary spend accounting for the biggest proportion of this reduction⁸¹. What is unclear from this study is whether control and test stores were matched for the total availability of seasonal confectionery during the study period, meaning we cannot be sure if it was the specific location of the seasonal confectionery or the increased availability of these products in test stores that contributed to the finding. Despite the poor compliance with only 39% of stores taking part, this study suggests that **adjusting the availability of products within stores can shift behaviour.**
28. Equally, at least three trials have looked at the in-aisle shelf placement of healthier lines in UK, US and Dutch supermarkets and observed no effect on sales for bread and cereals^{82 83 84} but some impact on certain milks and frozen

⁸⁰ Sainsbury's. (2022) Sainsbury's could help to feed over half a million pregnant women and children as cost-of-living rises. Accessed 25 March 2024.

<https://www.about.sainsburys.co.uk/news/latest-news/2022/10-10-2022-sainsburys-could-help-feed-half-a-million-as-cost-of-living-rises>

⁸¹ Fildes, A., et al. (2022). Impact on purchasing behaviour of implementing 'junk free checkouts': A pre-post study. *Nutrition bulletin*, 47(3), 333-345.

<https://doi.org/10.1111/nbu.12572>

⁸² Piernas, C., Harmer, G., & Jebb, S.A. (2022). Testing availability, positioning, promotions, and signage of healthier food options and purchasing behaviour within major UK supermarkets: Evaluation of 6 nonrandomised controlled intervention studies. *PLOS Medicine*, 19(3), e:1003952. <https://doi.org/10.1371/journal.pmed.1003952>

⁸³ de Wijk, R. A., et al. (2016). An in-store experiment on the effect of accessibility on sales of wholegrain and white bread in supermarkets. *PLoS one*, 11(3), e0151915.

<https://doi.org/10.1371/journal.pone.0151915>

⁸⁴ Foster, G. D., et al. (2014). Placement and promotion strategies to increase sales of healthier products in supermarkets in low-income, ethnically diverse neighborhoods: a randomized controlled trial. *Am J Clin Nutr*, 99(6), 1359-1368.

meals⁸⁴, suggesting that customers may be more loyal to certain products in some categories but there may be opportunity to influence their purchases in others.

29. **There is huge potential for changes in the retail environment to affect positive consumer behaviour change.** Collaboration and sharing expertise is key to ensuring changes to the food retail environment are evidence-based and therefore have the best chance at promoting healthier and more sustainable diets.

Q9 Lessons learned from international policy and practice, and from the devolved administrations, on diet-related obesity prevention.

30. The devolved nations have different approaches to managing diet and health, for example in Scotland there is the **National Good Food Nation Plan**, which is advocating for a **whole systems approach to food system transformation in Scotland**⁸⁵. The Plan will be coproduced with multiple stakeholders including citizens, communities, businesses, agencies and organisations, and several public consultation engagement events are currently being delivered throughout Scotland.
31. The past five years has seen a proliferation of local food partnerships across the UK, many affiliated with Sustainable Food Places. One of the key roles of local food partnerships has been the development of local food strategies in collaboration with local authorities. In this context, **local food action plans have emerged as complementary mechanisms of local food systems governance**, which build upon and strengthen commitment to local food policies and strategies. For example, over 100 organisations, including from the TUKFS FixOurFood project, came together to develop a local food action plan for Sheffield⁸⁶. The plan signifies a shared commitment to building a local food system where everyone has access to healthy and sustainable food.
32. Changing food procurement is often seen as an easy intervention (e.g. making a commitment to purchasing 50% local food). But, in practice, many of the challenges encountered in improving the provision of public sector/institutional food for health and sustainability are beyond the scope of procurement processes. **A systems approach is needed to cuts across public health, food production and land use policies.** For example, the Welsh Government has recently provided support to expand on a successful pilot scheme⁸⁷ that will help meet their commitment to providing two portion of vegetables in every primary school meal. The Welsh Veg in School scheme⁸⁸, led by Food Sense Wales, is also helping to develop a market for agroecological fruit and vegetable growers in Wales by supporting investment into sustainable local vegetable supply chains – potentially worth around £15m, doubling the land used to grow veg in Wales and support 100 new horticulture businesses. The scheme recognises the fundamental role of engagement activities in schools (to encourage familiarity with vegetables and to develop new tastes and

<https://doi.org/10.3945/ajcn.113.07557>

⁸⁵ <https://www.gov.scot/publications/national-good-food-nation-plan/>

⁸⁶ <https://sheffood.org.uk/wp-content/uploads/2023/06/sheffield-local-food-action-plan-2023-links.pdf>

⁸⁷ https://www.foodsensewales.org.uk/app/uploads/2023/01/CourgetteReport_Eng.pdf

⁸⁸ <https://www.foodsensewales.org.uk/good-food-movement/pilot-project-welsh-veg-in-schools/>

preferences) as well as to build relationships across stakeholders (producers – including social enterprises, wholesalers, catering teams, local food partnerships as well as local authority procurement and public health teams).

Q10 The effectiveness of Government planning and policymaking processes in relation to food and drink policy and tackling obesity.

33. Theis and White⁸⁹ analysed the effectiveness of Government obesity strategies in England between 1992 and 2020. They observed that:
 - There were 14 strategies and 689 wide-ranging policies published between 1992 and 2020, yet the prevalence of obesity has not reduced.
 - The majority of policies relied on individuals to make changes to their diet and lifestyle.
 - Successive governments have proposed similar or identical policies.
 - Governments rarely commission evaluations of previous government strategies or learn from failures.
34. Despite decades of activity in UK diet and obesity strategies and policies, their historic focus on behaviour change and information provision (e.g. voluntary food labelling guidelines) is thought to have contributed to a relative lack of impact on population diet and health⁸⁸. **Policies often rely on individuals to make behaviour changes rather than adopting a whole systems approach** and are consequently ineffective and inequitable.
35. The UK Government's 2022 Food Strategy lacked ambition and many of its promises have since been abandoned or delayed, including the Health Disparities White Paper⁹⁰. Existing commitments need to be implemented, such as the ban on multi-buys for HFSS products. Budget needs to be prioritised, for example only £5 million has been invested by Government to support a 'school cooking revolution'. A long term, coherent food system policy is needed to steer the UK towards a food system that promotes both human and planetary health.

Q11 The impact of recent policy tools and legislative measures intended to prevent obesity.

36. Healthy Start Vouchers are helping lower income groups access healthy food. **We support the recent Food Foundation call for Government to increase the uptake of the Healthy Start Scheme** by increasing the value of the allowance in line with inflation; to expand eligibility to more families in need; and to increase uptake of vouchers to ensure that no eligible families miss out⁹¹. It is worth noting that since the digitisation of HSV, Sainsbury's have reported difficulties automating the supermarket £2 top ups, as they struggle to identify card users on their systems. Measures to systemically

⁸⁹ Theis, D. R., & White, M. (2021). Is obesity policy in England fit for purpose? Analysis of government strategies and policies, 1992–2020. *The Milbank Quarterly*, 99(1), 126–170. <https://doi.org/10.1111/1468-0009.12498>

⁹⁰ Doherty, B., Jackson, P., Wagstaff, C. et al. The UK government's 2022 food strategy a year later. *Nat Food* 4, 824–825 (2023). <https://doi.org/10.1038/s43016-023-00859-x>

⁹¹ The Food Foundation (2024). Kids Food Guarantee: First Infant Formula February 2024 update. Accessed 27 March 2024. <https://foodfoundation.org.uk/publication/kids-food-guarantee-first-infant-formula-february-2024-update#:~:text=As%20part%20of%20the%20Kid's,tracking%20prices%20to%20monitor%20performance.>

address this would be helpful as multiple retailers have been willing to top up these welfare benefits providing additional support to vulnerable families.

37. Robust policy evaluation is essential to understand context, content and implementation. In October 2022, legislation came into effect in England that restricts promotion of products High Fat, Sugar or Salt (HFSS) by in-store and online location. Beginning a year on from the HFSS legislation's implementation, **the University of Leeds and IGD will evaluate the impact of HFSS legislation by working with multiple major retailers**, as part of the UK Research and Innovation-funded Diet and Health Inequalities (DIO Food) project. **This will be the first-ever evaluation of this legislation and comes ahead of proposed implementation in the devolved nations.** Therefore providing a unique opportunity to conduct an analysis of the impacts for retailers ahead of any new policy changes across the UK. Dissemination of the project findings will begin later this year.

Q12 Policy tools that could prove effective in preventing obesity amongst the general population, including those focussed on the role of the food and drink industry in tackling obesity.

38. Wide-reaching food industry-facing policies which **structurally alter the food environment and require less cognitive effort on behalf of individuals** are recommended⁸⁸. With the majority of UK food purchasing occurring in supermarkets⁹², large grocery retailers are a promising policy target. However, there is a need for **comprehensive legislative reforms to ensure that food promotions/special offers are in favour of health**⁹³. Alternative approaches that don't encourage over-purchasing but reduce the cost of healthier foods relative to HFSS products should therefore be considered. For example, through changes to VAT on HFSS products as well as high-carbon emission foods, or through the National Food Strategy Independent Review's proposed sugar and salt reformulation tax⁹⁴.
39. It is essential that future policies, and the ways in which they are implemented, are **coproduced** with diverse populations of citizens. The **Obesity Voices Patient and Public Involvement (PPIE) Hub**⁹⁵ is an excellent example of a lived experience network that can facilitate the involvement of patients and members of the public living with obesity in policy design and tools such as the **CO-CREATE Dialogue Forum Tool**⁹⁶ can be helpful to triangulate diverse stakeholders' perspectives and to inform policy development. For example, two recent FIO Food project stakeholder workshops utilised this tool to identify recommendations for health professionals and policy makers that might enable people living with obesity and food insecurity to make healthier and more sustainable dietary choices (white paper to be published in April 2024).

⁹² Statista (2023). Supermarkets in the United Kingdom – statistics & facts. Accessed 01 March 2024. <https://www.statista.com/topics/1983/supermarkets-in-the-united-kingdom-uk/#editorsPicks>

⁹³ Stone, R. A., Brown, A., Douglas, F., Green, M. A., Hunter, E., Lonnie, M., ... & Team, F. F. (2024). The impact of the cost of living crisis and food insecurity on food purchasing behaviours and food preparation practices in people living with obesity. *Appetite*, 107255. <https://doi.org/10.1016/j.appet.2024.107255>

⁹⁴ [The National Food Strategy: The Plan](#) (July 2021).

⁹⁵ <https://www.leedsbeckett.ac.uk/research/obesity-institute/obesity-voices/>

⁹⁶ <https://eatforum.org/initiatives/co-create/>

8 April 2024