

OBESITY ACTION SCOTLAND - WRITTEN EVIDENCE (FDO0021)

UK House of Lords - Call for evidence on the links between food, diet and obesity

1. Key trends in food, diet and obesity, and the evidential base for identifying these trends.

Rates of overweight and obesity in England, and across the UK, have been steadily rising over recent decades. In 1993, the prevalence of people living with overweight and obesity in England stood at 52.9% and increased by over 10 percentage points to reach 64.3% in 2021 (1). This trend has also unfolded in neighbouring Scotland, where 67% of the population now has overweight or obesity (2). Scotland's health, diet and weight statistics are very similar to those of England, including stubbornly high rates of overweight and obesity in child age groups as well. In 2022, a third of children aged 2-15 in Scotland were living with overweight including obesity (2). In school year 2022/23, the percentage of children at risk of obesity when starting school was 10.5% in Scotland and 9.2% in England (3, 4).

There is a clear connection between population diet and weight outcomes. In Scotland, the population has not managed to achieve the national dietary goals since their inception in 1996. This has been due to both overconsumption of unhealthy nutrients such as free sugars and saturated fats alongside underconsumption of nutritious foods such as fruits, vegetables, and wholegrains (5). These consistent shortcomings over a long period of time indicate that there are structural failings in the food system which are not supporting people to eat a healthy diet.

Scotland has similar data sources to England for identifying trends in diet and weight. The annual Scottish Health Survey (2) provides statistics on both child and adult BMIs, as well as dietary information on fruit and vegetable consumption. A report on the BMI of children starting school (aged four to five) is also released yearly and typically has very high national coverage of over 90% (3). However, unlike England, Scotland does not have a follow up report for children in their last year of primary school.

A recent addition to the evidence base in Scotland includes a report which examined data from the Growing Up in Scotland study. The report

analysed longitudinal weight data for children at different ages over time and found that the prevalence of overweight and obesity increases significantly between the ages of four and 14 (6).

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

The evidence has been clear for many years that the drivers of obesity are complex and interconnected (7). However, more recent research has confirmed that, broadly speaking, the primary factor that influences weight gain is calorie consumption (i.e. diet) (8). Therefore, it can be said that despite the importance of other factors such as physical activity, it is changes to the diets of populations in recent decades that have been pushing up rates of overweight and obesity.

There is a significant social gradient in overweight and obesity outcomes that is evident throughout the UK. The latest data in Scotland shows that 36% of people from the most deprived areas have obesity compared to 19% of people from the least deprived (2). The most important factors contributing to inequalities in weight outcomes relate to differences in ability to afford and access a healthy diet. Evidence shows that those in the lowest income quintile need to spend significantly more of their disposable income to meet dietary recommendations compared to those in the highest (50% vs 11%) (9). Deprived areas are also more likely to be classed as 'food deserts' where access to healthy food options is limited (10). These barriers to healthy eating faced by more deprived socioeconomic groups are reflected in population nutrition surveys taken in England and Scotland (5, 11).

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

Obesity negatively impacts health in several ways, both physically and mentally. It increases the risk of conditions such as type two diabetes, cardiovascular disease, over ten types of cancers, as well as musculoskeletal problems (12). Obesity is also associated with mental health problems. In terms of children and adolescents with obesity in particular, evidence suggests they may face physical issues including breathing difficulties, hypertension, and insulin resistance, along with emotional and behavioural impacts associated with stigmatisation and bullying (12).

4. 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.

There is some evidence to suggest that maternal obesity is associated with a higher risk of obesity in offspring (13, 14). Influences on the diets of children and adolescents are wide-ranging and significantly dictated by the environment they grow up in. These include whether or not they are breastfed in early years (15), the availability and quality of meals in schools (16), parents' level of socioeconomic advantage (17), and exposure to marketing such as adverts for unhealthy food and drink products (18). Evidence from Scotland shows other risk factors for developing overweight and obesity during childhood include experiencing food insecurity and living in a deprived local area (6).

5. The definition of a) ultra-processed food (UPF) and b) foods high in fat, sugar and salt (HFSS) and their usefulness as terminologies for describing and assessing such products.

A single definition for UPFs is yet to be confirmed, however, there is enough overlap across existing definitions to conclude that: UPFs use processes and ingredients that could not be applied in a home kitchen; are typically composed of more than five ingredients; and have low nutritional quality and high energy density. Foods high in fat, sugar and salt (HFSS) are defined as such based on their score when applied to the UK Nutrient Profiling Model (NPM) (19). Products which fail the NPM are classified as HFSS while those that pass are not. HFSS (or discretionary) products are known to be responsible for a significant proportion of calories in modern diets and are typically the types of food that lack nutrients (e.g. soft drinks, confectionery) (5).

In terms of their respective values for assessing product healthiness, evidence suggests there is substantial overlap between the products that would fall into the two categorisations (20). Due to the evidence on HFSS products being more developed, and in the interest of ensuring timely interventions are delivered, it would be sensible to continue using them as the basis for public health policy for the time being. This would result in many UPF products being captured in regulations while also strengthening the case for specific action on UPFs if the emerging evidence base recommends so.

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

Use of front of pack nutritional labelling should be made mandatory on all packaged products (online as well) and should be easily accessible without shoppers having to purposely seek out the information. There is evidence to suggest traffic light labelling may be the most effective in terms of encouraging healthier purchasing (21). As mentioned, HFSS products should be a priority, carrying clear and honest labelling which allows citizens to easily notice that they are not nutritionally beneficial. Countries in Latin America have implemented stronger forms of labelling for HFSS products described as 'warning labels' (22). The labels are intended to be more explicit than other forms of nutritional labelling and are also used to cover branding and prohibit the use of cartoon characters on packaging. There is some evidence to show they have helped reduce sales of HFSS products in Chile (22).

In terms of advertising, products that do not pass the nutrient profiling model and which are classified within an unhealthy product category (e.g. confectionary, biscuits), should be restricted altogether.

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

Evidence from the UK suggests nearly 60% of calories consumed by older children and adults come from UPF products (9). This indicates that these products are more easily available and affordable compared to alternatives. This is supported by analysis showing that more healthy foods are over twice as expensive per calorie as less healthy foods (9). Elsewhere, research from Europe shows that diets with a higher proportion of UPF products are significantly cheaper than diets with lower volumes of UPF (23). HFSS products are also more accessible and affordable than healthier alternatives, as referenced in the response to question 2.

There is growing evidence to suggest UPF products are harmful to human health. An umbrella review published in 2024 found greater exposure to UPFs was associated with a higher risk of adverse health issues, including obesity and mortality outcomes (24). Policymakers should maintain a keen focus on the UPF evidence to help inform interventions that could protect public health. In terms of HFSS products, there is a clear consensus that they are one of the leading contributors to various NCDs and are associated with rising rates of overweight and obesity (25).

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

The 2021 National Food Strategy provides a thorough explanation of the role of industry in driving population diets and food-related illnesses (26). It describes how large parts of the food industry are stuck in a 'junk food cycle' whereby they continue to produce palatable, energy dense products as these are what humans evolved to crave as sources of calories. Given these products are so innately popular, and therefore profitable, they end up dominating the food environments we live in; from their excessive advertising (9) to retail promotions (27) to what is offered when eating out (28). However, without government regulation that incentivises healthier products and ensures an even playing field, food producers and retailers will not risk changing the status quo on their own.

There is a strong body of evidence highlighting the various tactics of the food and drink industry to prevent interventions that threaten its influence. Research has pointed to efforts including political lobbying, advocating for deregulation, proposing voluntary or self-regulation, publishing biased evidence, and legal action (29, 30, 31). UK government officials have themselves revealed the aggressive lobbying used by industry to delay and prevent the implementation of public health policies (32).

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

Countries in South America have been some of the first in the world to begin rolling out cohesive, population-level healthy diet and weight policies (33). Interventions throughout the continent have included taxes on unhealthy food and drink products, advertising restrictions, restrictions on unhealthy foods in educational settings, as well as measures specifically aimed at increasing consumption of healthy foods. Evidence from evaluations suggests these measures have contributed to lower exposure to and consumption of harmful food and drink products (32, 34). In Europe, the city of Amsterdam has become a leader in addressing childhood obesity through the adoption of a Whole Systems Approach to children's health. Its theory-based approach has supported policymakers to target the many complex drivers of diet and weight in children, including health and care, healthy work environments, healthy food environments, youth policy, unhealthy poverty approach, sports, physical activity, and education (35).

Scotland has also produced examples of structural-level policy. In 2017, the Healthcare Retail Standard was introduced which requires all healthcare settings in Scotland to ensure at least 50% of food and drink products stocked meet healthy nutritional criteria (36). An evaluation

confirmed it was serving its purpose and resulted in more healthy products being purchased in compliant outlets (37). This provides a strong precedent for further action on public procurement and health standards to improve dietary outcomes. The Scottish Government is also in the process of introducing an action plan to improve the healthiness of Scotland's out of home sector by working with retailers to rebalance their menu offerings towards healthier ingredients (38). Finally, there is an ongoing public consultation on the detail of HFSS promotions regulations which are expected to include a comprehensive package of measures to restrict price and location promotions of unhealthy products in Scotland (39).

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

Given no nation within the UK has successfully managed to reduce its prevalence of obesity over recent decades, it can be concluded that policy thus far has not been effective. Research examining obesity planning and strategy in the UK shows shortcomings in relation to theories of change and a broader misunderstanding of obesity's complexity (40, 41). Despite extensive evidence confirming that the drivers of higher obesity rates are structural (e.g. poverty, the unhelpful food environment), the vast majority of government policies to date have relied heavily on the agency of individuals (40). When examples of structural interventions have been put forward, they have largely been proposed on a voluntary basis which has proved unsuccessful (e.g. the calorie and sugar reduction programmes).

An important barrier to effective planning also includes policymaker fears over being perceived as a 'nanny' state; however, polling shows the public rejects this reasoning (42, 43). Finally, there has been a lack of cross departmental, joined-up planning over the years which has resulted in numerous policies being rehashed and repackaged without any real implementation (40, 43).

As covered in question 8, political lobbying and interference with public health policy by food and drink industry actors has also hampered progress.

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

The most significant policy aimed at reducing obesity in the UK in recent years is the Soft Drinks Industry Levy (SDIL) which has shown to have

decreased the sugar content in soft drinks (44). There is evidence to suggest the levy may be having a positive impact in the form of reduced obesity rates in children as well as reduced hospital admissions for dental decay (45, 46).

Early data examining the impact of England's restrictions on location promotions for HFSS products suggests the measure helping to reduce purchases of unhealthy food and drink and supporting people towards healthier offerings in retail environments (47). However, there is also evidence showing some shops are failing to abide by the legislation, citing a lack of information from those enforcing the policy as the reason for non-compliance (48).

In Scotland, there is evidence which strongly recommends certain obesity prevention measures. Modelling by the Scottish Government shows that restricting all types of retail price promotions on HFSS products, including temporary price reductions, could result in a net reduction of 613 calories per person per week (49). The analysis showed this reduction could only be achieved if all types of promotions were restricted. A calorie reduction of this size would be significant in helping to support healthy weight in the population.

Scotland has also been a leader in rolling out Whole System Approach (WSA) programmes for diet and healthy weight in local areas (50). A 2023 report outlined various WSA policy levers that are within the jurisdiction of local authorities, along with evidence indicating their positive impacts on diet and weight outcomes (51). The findings may be used as a tool for informing policy relating to obesity prevention at both the local and national level.

12. 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.

As emphasised in the 2007 Foresight report (5) no single policy intervention used in isolation will create the desired change in population diet and weight outcomes. The complexity of the food system and of obesity as a condition demands co-ordinated action from multiple sectors and stakeholders, including (but not limited to)

- Restrictions on all forms of price and location promotions for HFSS products, both in store and online.
- Restrictions on all forms of advertising and marketing for HFSS products.

- Prevention of misleading marketing of food and drinks aimed at infants and young children with new regulations to ensure honest labelling that aligns with public health advice.
- Mandatory reformulation targets for the food industry to reduce excessive calorie contents and excessive fat, sugar and salt in food and drink products (including the out of home sector). Targets should also include greater use of healthier ingredients such as fruits, vegetables and wholegrains.
- Mandatory sales reporting for large food companies, including supermarkets and out of home sector businesses, to hold them accountable on the volume of healthy vs unhealthy products they sell.
- Rolling out universal free school meals for both primary and secondary school children.
- Policies to ensure universal breastfeeding support programmes are accessible to all families.

References

1. UK Parliament. House of Commons Library; Obesity Statistics. Available from: <https://commonslibrary.parliament.uk/research-briefings/sn03336/>
2. Scottish Government. The Scottish Health Survey 2022. Available from: <https://www.gov.scot/publications/scottish-health-survey-2022-volume-1-main-report>
3. Primary 1 Body Mass Index (BMI) statistics Scotland. School year 2022 to 2023. Available from: <https://publichealthscotland.scot/publications/primary-1-body-mass-index-bmi-statistics-scotland/primary-1-body-mass-index-bmi-statistics-scotland-school-year-2022-to-2023/#:~:text=In%20school%20year%202022%2F23,children%20at%20risk%20of%20obesity.>
4. NHS England. Latest figures show drop in obesity rates among primary school children: statistical press release. Available from: <https://digital.nhs.uk/news/2023/latest-figures-show-drop-in-obesity-rates-among-primary-school-children-statistical-press-release>
5. Food Standards Scotland. Situation report -The Scottish Diet: It needs to change (2020 update). Available from: https://www.foodstandards.gov.scot/downloads/Situation_Report_-_The_Scottish_Diet_It_Needs_to_Change_%282020_update%29.pdf
6. Miall N and Pearce A., 2024. Growing up in Scotland: Obesity from early childhood to adolescence. Available from: <https://www.obesityactionsotland.org/media/c2elenpt/gus-report-full-final.pdf>
7. UK Government. Foresight – Tackling Obesities: Future choices project report. Available from: <https://www.gov.uk/government/publications/reducing-obesity-future-choices>
8. The Behavioural Insights Team. Counting Calories: How under-reporting can explain the apparent fall in calorie intake. Available from: <https://www.bi.team/wp-content/uploads/2016/08/16-07-12-Counting-Calories-Final.pdf>
9. The Food Foundation. The Broken Plate 2023. Available from: https://foodfoundation.org.uk/sites/default/files/2023-10/TFF_The%20Broken%20Plate%202023_Digital_FINAL..pdf
10. Social Market Foundation. What are the barriers to eating healthily in the UK? Available from: <https://www.smf.co.uk/publications/barriers-eating-healthily-uk/>

11. UK Government. Official Statistics - NDNS: results from years 9 to 11 (2016 to 2017 and 2018 to 2019). Available from:

<https://www.gov.uk/government/statistics/ndns-results-from-years-9-to-11-2016-to-2017-and-2018-to-2019>

12. Obesity Action Scotland. Obesity in Scotland – Prevalence, Causes and Impact. Available from:

<https://www.obesityactionscotland.org/media/jadblmn4/obesity-prevalence-factsheet-2022-23-data.pdf>

13. Heslehurst N, Vieira R, Akhter Z, Bailey H, Slack E, Ngongalah L, Pemu A, Rankin J. The association between maternal body mass index and child obesity: A systematic review and meta-analysis. *PLoS medicine*. 2019 Jun 11;16(6):e1002817. Available from:

<https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1002817>

14. Josey, M.J., McCullough, L.E., Hoyo, C. and Williams-DeVane, C., 2019. Overall gestational weight gain mediates the relationship between maternal and child obesity. *BMC public health*, 19, pp.1-9. Available from:

<https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-019-7349-1>

15. UNICEF. Overweight and Obesity – Infant health research. Available from: <https://www.unicef.org.uk/babyfriendly/news-and-research/baby-friendly-research/infant-health-research/infant-health-research-obesity/#:~:text=This%20study%20of%2016%20countries,for%20six%20months%20or%20more.>

16. Cohen JF, Hecht AA, McLoughlin GM, Turner L, Schwartz MB. Universal school meals and associations with student participation, attendance, academic performance, diet quality, food security, and body mass index: a systematic review. *Nutrients*. 2021 Mar 11;13(3):911. Available from:

<https://www.mdpi.com/2072-6643/13/3/911>

17. Obesity Action Scotland. Understanding childhood weight in Scotland: What can longitudinal data tell us? Available from:

<https://www.obesityactionscotland.org/media/5b2bplje/gus-report-summary-final.pdf>

18. Bite Back. Enticing, Effective and Everywhere - How Brands are Keeping Unhealthy Food and Drink in the Spotlight with Digital Marketing to Young People. Available from:

https://biteback.contentfiles.net/media/documents/Enticing-Effective-Everywhere-FINAL_1.pdf

19. UK Government. The nutrient profiling model. Available from: <https://www.gov.uk/government/publications/the-nutrient-profiling-model>
20. House of Lords. Food, Diet and Obesity Committee (February 2024). Available from: <https://committees.parliament.uk/oralevidence/14399/html/>
21. Cecchini, M. and Warin, L., 2016. Impact of food labelling systems on food choices and eating behaviours: a systematic review and meta-analysis of randomized studies. *Obesity reviews*, 17(3), pp.201-210. Available from: <https://onlinelibrary.wiley.com/doi/10.1111/obr.12364>
22. Crosbie E, Gomes FS, Olvera J, Patiño SR, Hoepfer S, Carriedo A. A policy study on front-of-pack nutrition labeling in the Americas: emerging developments and outcomes. *The Lancet Regional Health–Americas*. 2023 Feb 1;18. Available from: [https://www.thelancet.com/journals/lanam/article/PIIS2667-193X\(22\)00217-4/fulltext](https://www.thelancet.com/journals/lanam/article/PIIS2667-193X(22)00217-4/fulltext)
23. Vandevijvere S, Pedroni C, De Ridder K, Castetbon K. The cost of diets according to their caloric share of ultraprocessed and minimally processed foods in Belgium. *Nutrients*. 2020 Sep 11;12(9):2787. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7551888/>
24. Lane MM, Gamage E, Du S, Ashtree DN, McGuinness AJ, Gauci S, Baker P, Lawrence M, Rebholz CM, Srour B, Touvier M. Ultra-processed food exposure and adverse health outcomes: umbrella review of epidemiological meta-analyses. *bmj*. 2024 Feb 28;384. Available from: [Ultra-processed food exposure and adverse health outcomes: umbrella review of epidemiological meta-analyses | The BMJ](https://www.bmj.com/content/384/n11001/e009000)
25. Nneli A, Revoredo-Giha C, Dogbe W. Could taxes on foods high in fat, sugar and salt (HFSS) improve climate health and nutrition in Scotland?. *Journal of Cleaner Production*. 2023 Oct 1;421:138564. Available from: <https://www.sciencedirect.com/science/article/pii/S0959652623027221#bib55>
26. National Food Strategy. The Plan. Available from: <https://www.nationalfoodstrategy.org/>
27. Scottish Government. Restricting promotions of food and drink high in fat, sugar or salt: business and regulatory impact assessment – partial. Available from: <https://www.gov.scot/publications/restricting-promotions-food-drink-high-fat-sugar-salt-partial-business-regulatory-impact-assessment/pages/2/>

28. Food Standards Scotland. Provision of calorie and nutrition information by branded out of home businesses in Scotland. Available from: <https://www.foodstandards.gov.scot/publications-and-research/publications/provision-of-calorie-and-nutrition-information-by-branded-out-of-home-businesses-in-scotland>
29. Lauber K, Hunt D, Gilmore AB, Rutter H. Corporate political activity in the context of unhealthy food advertising restrictions across Transport for London: A qualitative case study. PLoS medicine. 2021 Sep 2;18(9):e1003695. Available from: <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1003695>
30. Legg T, Hatchard J, Gilmore AB. The science for profit model—how and why corporations influence science and the use of science in policy and practice. Plos one. 2021 Jun 23;16(6):e0253272. Available from: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0253272>
31. Chung A, Westerman L, Martin J, Friel S. The commercial determinants of unhealthy diets. Public Health Research & Practice. 2022 Oct 12;32(3). Available from: <https://www.phrp.com.au/issues/october-2022-volume-32-issue-3/commercial-determinants-of-unhealthy-diets/>
32. Sustain. Food industry using Big Tobacco lobbying tactics on Government. Available from: <https://www.sustainweb.org/news/dec23-food-industry-lobbied-government-ministers/>
33. Melo G, Aguilar-Farias N, Barrera EL, Chomalí L, Moz-Christofolletti MA, Salgado JC, Swensson LJ, Caro JC. Structural responses to the obesity epidemic in Latin America: what are the next steps for food and physical activity policies?. The Lancet Regional Health—Americas. 2023 May 1;21. Available from: [https://www.thelancet.com/journals/lanam/article/PIIS2667-193X\(23\)00060-1/fulltext](https://www.thelancet.com/journals/lanam/article/PIIS2667-193X(23)00060-1/fulltext)
34. Dillman Carpentier FR, Mediano Stoltze F, Reyes M, Taillie LS, Corvalán C, Correa T. Restricting child-directed ads is effective, but adding a time-based ban is better: evaluating a multi-phase regulation to protect children from unhealthy food marketing on television. International Journal of Behavioral Nutrition and Physical Activity. 2023 May 26;20(1):62. Available from: <https://link.springer.com/article/10.1186/s12966-023-01454-w>
35. Obesity Action Scotland. Amsterdam Tackles Childhood Obesity. Available from: <https://www.obesityactionsotland.org/campaigns-and->

[policy/international-learning/amsterdam/amsterdam-tackles-childhood-obesity/](#)

36. SGF Healthy Living Programme. Healthcare Retail Standard. Available from: <https://www.healthylivingprogramme.co.uk/healthcare-retail-standard>

37. Public Health Scotland. Evaluation of the Healthcare Retail Standard. Available from: <https://www.healthscotland.scot/media/2326/evaluation-of-the-healthcare-retail-standard.pdf>

38. Public Health Scotland. Eating Out, Eating Well. Available from: <https://eatingouteatingwell.publichealthscotland.scot/>

39. Scottish Government. Restricting promotions of food and drink high in fat, sugar or salt – Consultation on the detail of proposed regulations. Available from: <https://consult.gov.scot/population-health/restriction-promotion-of-food-and-drink-proposed/>

40. Theis DR, White M. Is obesity policy in England fit for purpose? Analysis of government strategies and policies, 1992–2020. *The Milbank Quarterly*. 2021 Mar;99(1):126-70. Available from: <https://onlinelibrary.wiley.com/doi/full/10.1111/1468-0009.12498>

41. Griffin, N., Phillips, S.M., Hillier-Brown, F., Wistow, J., Fairbrother, H., Holding, E., Powell, K. and Summerbell, C., 2021. A critique of the English national policy from a social determinants of health perspective using a realist and problem representation approach: the 'Childhood Obesity: a plan for action'(2016, 2018, 2019). *BMC Public Health*, 21, pp.1-10. Available from: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-021-12364-6>

42. Institute for Government. Tackling obesity: Improving policy making on food and health. Available from: <https://www.instituteforgovernment.org.uk/publication/tackling-obesity>

43. Food, Farming and Countryside Commission. So, what do we really want from food? Available from: <https://ffcc.co.uk/publications/so-what-do-we-really-want-from-food-summary>

44. Scarborough P, Adhikari V, Harrington RA, Elhussein A, Briggs A, Rayner M, Adams J, Cummins S, Penney T, White M. Impact of the announcement and implementation of the UK Soft Drinks Industry Levy on sugar content, price, product size and number of available soft drinks in the UK, 2015-19: A controlled interrupted time series analysis. PLoS medicine. 2020 Feb 11;17(2):e1003025. Available from: <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1003025>
45. Rogers NT, Cummins S, Forde H, Jones CP, Mytton O, Rutter H, Sharp SJ, Theis D, White M, Adams J. Associations between trajectories of obesity prevalence in English primary school children and the UK soft drinks industry levy: An interrupted time series analysis of surveillance data. PLoS Medicine. 2023 Jan 26;20(1):e1004160. Available from: <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1004160>
46. Rogers NT, Conway DI, Mytton O, Roberts CH, Rutter H, Sherriff A, White M, Adams J. Estimated impact of the UK soft drinks industry levy on childhood hospital admissions for carious tooth extractions: interrupted time series analysis. BMJ nutrition, prevention & health. 2023 Dec;6(2):243. Available from: <https://nutrition.bmj.com/content/early/2023/10/31/bmjnph-2023-000714>
47. The Grocer. HFSS restrictions 'pushing shoppers to healthy products'. Available from: [https://www.thegrocer.co.uk/buying-and-supplying/hfss-restrictions-pushing-shoppers-to-healthy-products/683764.article?utm_source=Daily%20News%20\(The%20Grocer\)&utm_medium=email&utm_campaign=2023-09-29&c=&cid=DM1098509&bid=215640802](https://www.thegrocer.co.uk/buying-and-supplying/hfss-restrictions-pushing-shoppers-to-healthy-products/683764.article?utm_source=Daily%20News%20(The%20Grocer)&utm_medium=email&utm_campaign=2023-09-29&c=&cid=DM1098509&bid=215640802)
48. Obesity Health Alliance, Food Active. Location, location, location - Exploring the impact and implementation of the promotion of high in fat, sugar and salt products by locations legislation in England. Available from: https://foodactive.org.uk/wp-content/uploads/2023/11/Location_Location_Location_Winter2023_FINAL.pdf
49. Scottish Government. Economic modelling: reducing health harms of foods high in fat, sugar or salt – Final Report. 2022. Available from: <https://www.gov.scot/binaries/content/documents/govscot/publications/research-and-analysis/2022/05/economic-modelling-reducing-health-harms-foods-high-fat-sugar-salt-final-report/documents/economic-modelling-reducing-health-harms-foods-high-fat-sugar-salt-final-report/economic-modelling-reducing-health-harms-foods-high-fat-sugar->

[salt-final-report/govscot%3Adocument/economic-modelling-reducing-health-harms-foods-high-fat-sugar-salt-final-report.pdf](https://www.gov.scot/document/attachments/economic-modelling-reducing-health-harms-foods-high-fat-sugar-salt-final-report.pdf)

50. Obesity Action Scotland. Overview of Whole System Approaches to Diet and Healthy Weight. Available from:
<https://www.obesityactionsotland.org/wsa/overview/>

51. Obesity Action Scotland, University of Edinburgh. Local levers for diet and healthy weight – top evidence-backed opportunities. 2023. Available from:
https://www.obesityactionsotland.org/media/1rfhqj35/local_levers_for_diet_and_healthy_weight_final.pdf

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