WRITTEN EVIDENCE FOR THE HOUSE OF LORDS COMMITTEE ON FOOD, DIET AND OBESITY

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The MRC Epidemiology Unit is a department at the University of Cambridge. Our work aims to improve people's health through understanding the causes of obesity, type 2 diabetes and related metabolic disorders, and finding strategies for their prevention. This response reflects our expertise, with a focus on research we have conducted.

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Executive summary

1. The wider physical, social and economic environments in which people live shapes what they eat. More deprived areas are less healthy environments. Changing the environment can support people to eat more healthily. Such changes are often supported by the public but opposed by the commercial food industry. Educational and informational approaches that require people to actively engage and change their 'choices' in an environment that does not support healthier choices are likely to be less effective and less equitable. We recommend:
    a. A renewed focus on changing the environment to make it easier to eat well, rather than expecting individuals to make healthier 'choices' in an unsupportive environment.
    b. Rapid implementation of policies already legislated for including restrictions on: price-based promotions in the grocery sector, and TV and online advertising of HFSS products.
    c. Adoption of the revised 2018 Nutrient Profiling Model (NPM), which reflects the Scientific Advisory Committee on Nutrition's most recent report on carbohydrates,[1] in all policies that currently use the 2004/5 NPM.
    d. Wider adoption of takeaway management zones by local authorities.
    e. Adoption of further taxes on unhealthy foods, as proposed in the National Food Strategy, expansion of the Soft Drinks Industry Levy (SDIL) to milk-based drinks and index linking of the SDIL to prevent erosion by inflation.
    f. Greater attention to alleviating food insecurity, including expanding access to Free School Meals and increasing the value of Healthy Start vouchers.

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

2. The MRC Epidemiology Unit delivers the UK National Diet and Nutrition Survey (NDNS) with NatCen. The most recent NDNS data (not interrupted by Covid) available is from 2016-19. This shows that UK diets often do not meet recommendations. For example, 85% of children aged 1.5-3y consumed more free sugars than recommended, as did 92% of children aged 4-10y, 93% of children aged 11-18y, 83% of adults aged 19-64y and 84% of adults aged 65y+. Similarly, 75-89% of people consumed more saturated fat than recommended, 85-96% consumed less fibre and 65-88% consumed less than five-a-day portions of fruit and vegetables.
3. Diet quality is consistently poorest in early adulthood.[2] Around ages 16-24y, consumption of fruit and vegetables is lowest, and consumption of fast foods, confectionary and sugar sweetened beverages (SSB) is highest. Diet quality then improves as people approach age 30y.[2,3]
4. Development of overweight and obesity has been advancing earlier in the life course.[4] Early adulthood is now the period when risk of becoming overweight and obese is at its highest.[5]

5. Life transitions in early adulthood contribute to dietary and health inequalities. Early exit from education is associated with reductions in diet quality[6] and poorer health in adulthood.[7]
6. Use of online food delivery services (e.g. Deliveroo, JustEat) is increasing. In 2018, 16% of UK adults reported using these services in the last week.[8] Use was more common in younger adults, men and those living with children. The food available through these platforms tends to be energy dense and nutrient poor;[9] greater consumption is associated with developing obesity.[10]
7. Across seven European countries, England has the highest availability of food outlets on online delivery services.[11] Availability is higher in more deprived areas[12] and is associated with greater use.[13] Out-of-home food outlets in more deprived areas tend to have less healthy menus creating a double burden in these areas.[14,15]
8. The emergence of dark kitchens may further increase availability of online food outlets. Dark kitchens are non-customer-facing food preparation spaces, which retailers use to prepare and fulfil orders from online food delivery services. Currently there is no established method for identifying dark kitchens. This limits surveillance and the assessment of associations with diet and health. We are currently working to address this gap.
9. Online grocery shopping is also common. In 2019, 38% of households used online grocery services at least once. Use was more common in higher income households. Households with higher use purchased more calories per person overall, but made fewer purchases of less healthy products on-line compared to in-store.[16]

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

10. Obesity is a complex, multifactorial condition. Genetics, physical activity, sedentary behaviour and dietary practices all play a role. Socio-economic and environmental factors are important modifiable determinants of poor diet.
11. Poor diet is not evenly distributed. People living in less affluent circumstances are more likely to consume an unhealthy diet. We found that people from more affluent households were around twice as likely to meet dietary recommendations for fruit and vegetables and oily fish than others.[17] People of non-white groups were also more likely to meet dietary recommendations.
12. Ethnic differences in diet are not well understood due to lack of research evidence.[18] NDNS includes participants from ethnic minorities, but analysis by ethnic group has not been conducted due to limited sample size and concerns of representativeness.
13. *"Food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life."*[19] Food insecurity is common in the UK. We found that 24% of UK adults experienced food insecurity in 2017. Food insecurity was more common in those struggling to make ends meet, full time students, those with less education, men and those who were not white British. Food insecurity was associated with lower intake of fruit and vegetables, and increased risk of poorer mental and physical health, including overweight and obesity.[20]
14. Access to food retail is associated with obesity. Our analyses showed that greater access to supermarkets was associated with a healthier diet [21] and that those living further away from supermarkets had higher body mass index (BMI) and greater risk of being overweight or obese. This effect was strongest among those with the least education.[22]
15. We have also found that greater access to physical takeaway outlets is associated with greater consumption of takeaway food and higher BMI.[23] This effect was greatest amongst the most socio-economically disadvantaged individuals.[24]

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

16. Obesity increases the risk of developing numerous adverse health outcomes in later life. These include type-2 diabetes, cardiovascular diseases, and endometrial, breast, ovarian, prostate, liver, gallbladder, kidney, and colon cancer. It also reduces quality of life and life expectancy.[25]

17. There are ethnic differences in the link between obesity and health. The development of new-onset type 2 diabetes occurs at substantially lower BMI in people of minority ethnic groups in the UK.[26] Incidence rates equivalent to those at a BMI of 30 in white people, were found at a BMI of 25 in South Asians and in African-Caribbeans.
18. Obesity in childhood and adolescence influences health throughout life.[27] Childhood health outcomes associated with obesity include, type 2 diabetes, obstructive sleep apnoea, intracranial hypertension, reduced mobility and poor mental health. Young adult outcomes associated with obesity include psychiatric diseases (e.g. depression).
19. Obesity in childhood and adolescence increases the risk of living with obesity in adulthood. The more years individuals live with obesity, the poorer their overall physical functioning.[28]

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

20. Diet and weight gain from infancy onwards is associated with later risk of obesity.[29,30] Weight gain in infancy can be avoided through breastfeeding, reducing the protein content of formula milk and weaning advice. Recent and ongoing trials of behavioural interventions support these efforts.[31]
21. The influence of pre-natal (maternal) nutrition on offspring obesity is unclear. While there is a clear correlation between BMI and weight status in mothers and their offspring, much of this can be explained by shared genetic factors and their common postnatal environment.
22. In young children, higher energy intakes, higher protein intakes and consumption of SSB have been associated with subsequent BMI and risk of obesity.[32]
23. Adolescents' experiences shape their future health and wellbeing.[33] Children and adolescents living with obesity are five times more likely to become an adult living with obesity.[34]

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

24. The term HFSS derives from the UK NPM.[35] This divides foods into those that are and are not 'less healthy', or HFSS. The NPM was originally developed in to determine which foods could be advertised during children's TV. It is now also used to determine e.g. which foods can be advertised on the Transport for London estate and are subject of restrictions on price- and place-based promotions.
25. HFSS was never intended to be a citizen-facing term. We are not aware of any work exploring public understanding of HFSS. There is evidence that the NPM is broadly aligned with the citizen-facing Eatwell Guide.[36] A revised version of the NPM was developed and publicly consulted on in 2018; a final version has not been published.
26. The term UPF derives from the NOVA food processing classification system.[37] Whilst it is widely used in the popular press, market research evidence suggests public understanding of it is poor.[38] We are conducting qualitative work exploring understanding in adults and adolescents.
27. In the UK, UPF consumption is high. For example, we found that 66% of children's dietary energy was derived from UPF[39] and 53% in adults.[40] In children, lower socio-economic position was associated with greater UPF consumption, those living with obesity consumed more UPF.[39]
28. The type of UPF consumed varies across the population (Brody et al, under review, *Public Health Nutrition*). Those living in more affluent circumstances consumed UPFs often perceived to be 'healthier' (e.g. yoghurts, plant based meat alternatives); whereas those living in less affluent circumstances consume UPFs typically considered 'junk food' (e.g. crisps, confectionary).
29. The overlap between HFSS and UPF has not been well studied. We are currently exploring this. If most UPF are also HFSS, then the current policy focus on HFSS would also address UPF. However, one potential impact of the policy focus on HFSS is to encourage reformulation to reduce fat, salt and sugar content. Reformulated UPF are still UPF.

30. Substantial research indicates a link between UPF and health outcomes, but it is not clear if this is causal. In particular, it is not clear if UPF are harmful over and above their tendency to be energy dense. Clear mechanisms linking UPF and health have not been established.[41]

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

31. Food labelling may help citizens understand what is in food. The introduction of calorie labelling in the out-of-home sector was associated with improved estimation of calories purchased.[42]
32. Most food advertising is for less healthy products. For example, in 2006-09, we found that 51% of person-minute views of TV food advertising in the UK were for HFSS products.[43] In 2015, UK children were exposed to 2.1 HFSS TV advertisements per day.[44]
33. Exposure to less healthy food advertising is associated with greater food consumption in children.[45] Our modelling suggests that eliminating less healthy TV food advertising from 0530-2100hr would lead to a 4.6% reduction in the prevalence of obesity in children and result in a health-related net monetary benefit of £7.4bn.[44]

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

34. Healthier food is more expensive than less healthy food. We found that fruit and vegetables and non-HFSS foods were consistently more expensive per 100kcal than foods in other groups and HFSS foods. The cost of food increased by 20% (£0.07/100 kcal) from 2013-23.[46]
35. Takeaway food outlets are proliferating. In 2022, 26% of food outlets in England were fast-food or takeaway outlets.[47] From 1990 to 2008, the number of takeaway outlets in Norfolk increased by 45% and density increased from 26 to 38 per 100,000 residents.[48] Most recently PHE estimated 96 takeaway and fast food outlets per 100,000 residents in 2017 in England.[49]
36. Food outlets, including takeaway food outlets, are more common in more deprived areas. In 2021 in England, we found that the most deprived decile of neighbourhoods had an average of 8.4 food outlets whereas the most affluent neighbourhoods had 3.9 outlets.[15]
37. Saturated fats from different foods may influence health and disease differently. For example, we found that consuming more saturated fats from red meat and butter was associated with higher risk of heart disease; but consuming more saturated fats from cheese and yoghurt was associated with lower risk of heart disease.[50] Fermented dairy products such as yoghurt may be particularly protective.[51,52] The US FDA recently allowed a qualified health claim for yoghurt as potentially protective for type 2 diabetes to be added to food labels.
38. Sugar sweetened beverages are an important source of free sugars. We found that habitual SSB consumption was associated with greater risk of type 2 diabetes.[53] This is also true of milk-based SSB,[54] which are currently exempted from the SDIL.

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

39. The commercial food industry does not support regulation to improve dietary public health - particularly pre-implementation. Commercial responses to a consultation on restricting less healthy TV food advertising to children supported less strict restrictions.[55] Commercial stakeholders appeared to have had more influence on the final policy than public health ones.[55]
40. Similarly, trans-national fast-food retailers consistently objected to takeaway management zones near schools. They claimed that the food they sell is not related to poor diet and health and offered, less effective, alternative interventions (Keeble et al, under review, *IJHPM*).
41. In media reports about the SDIL, industry actors were opposed to the levy when it was first announced. This evolved into a narrative of successful adaptation after implementation.[56]
42. After implementation, industry is often more supportive of regulation, emphasising that it can create a 'level playing field'. This was the case for both the SDIL[56,57] and mandatory calorie labelling in the out-of-home sector.[58]

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

43. Some prevention approaches make greater demands on individuals than others. Information and education requires people to actively engage to benefit. Other approaches change the environment in which people live. These include food reformulation, price changes, marketing restrictions, and changing the availability of less healthy foods and food outlets. Changing the environment may be more effective and equitable than requiring people to actively engage.[59,60]
44. Fourteen obesity strategies, including 689 policies, were introduced in England from 1992-2020.[61] Despite this, obesity prevalence has not declined. This may be because strategies often overemphasised individual responsibility for behavioural change without addressing broader societal and environmental influences on diet and obesity.

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

45. We have explored the impacts of many interventions aiming to improve dietary public health. Often the most successful ones change the environments that people live in.
46. Introduction of mandatory calorie labelling in the out-of-home sector was not associated with changes in calories purchased or consumed.[62] However, only 80% of outlets provided any calorie labelling and only 15% met all requirements.[42] The policy was associated with a small reduction in the mean number of calories in items available for sale.[63] Interviews with food industry employees and local authorities revealed an environment of presumed compliance.[64] Better enforcement could improve compliance and the impact of this policy.
47. The SDIL is a tiered tax on soft drinks manufacturers designed to incentivise reformulation and reduction of the amount of sugar in drinks. It was associated with:
    a. reformulation of drinks: by one year after implementation, there was a 34 percentage point reduction in the number of eligible drinks that contained more than 5g sugar per 100ml[65]
    b. reduction in purchasing of sugar from soft drinks: one year after implementation, the amount of sugar purchased in soft drinks decreased by 8g (3%) per household per week;[66] this effect was most pronounced in households with children and lower incomes[67]
    c. reduction in total dietary free sugar consumption: one year after implementation, adults consumed 11g (20%) less sugar per day and children consumed 5g (10%) less[68]
    d. reduction in obesity prevalence: specifically in year 6 girls, especially from the most deprived areas; equivalent to 5,234 (8%) averted cases of obesity annually[66]
    e. reduction in the number of children admitted to hospital for tooth extractions: 22 months after implementation there were 5638 (12%) fewer hospital admissions per year[69]
    f. reduction in the number of children admitted to hospital for asthma: a 21% reduction 22 months after implementation,[70] reflecting suggested associations between SSB consumption and asthma
    g. improvements in health: 200,000 QALYs gained and £174m saved in health care costs[71]
    h. no long-lasting financial effects on companies[72,73]
48. Restricting advertising of HFSS products across the TfL network was associated with a 7% decrease in average weekly household purchases of energy from HFSS foods.[74]
49. A 9pm 'watershed' on TV advertising of less healthy food has been legislated for but delayed. The findings from our modelling work are reported in paragraph 26.
50. Recent restrictions on placement of HFSS products in prominent store locations follow voluntary implementation of 'junk free' checkouts in some supermarkets. These led to a 15% reduction in purchases of common checkout foods.[75] Parents were supportive of these efforts.[76]
51. At least 35 English local authorities have adopted takeaway management zones around schools. These were associated with fewer planning applications, more applications being rejected[77] and 54% fewer new takeaways up to six years after adoption.[78] Adults support these zones.[79]

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