PROF MARIA BRYANT ET AL, PUBLIC HEALTH NUTRITION GROUP AT UNIVERSITY OF YORK - SUPPLEMENTARY WRITTEN EVIDENCE (FDO0139)

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Q1. How does the prevalence of poor diet and obesity differ across population and demographic groups, and what are the reasons for disparities?

OBESITY PREVALENCE:

- 60% of adults / 30% of children live with overweight or obesity
- 20% of children already live with overweight or obesity when they start primary school (10% obesity)
- 25% of children have overweight or obesity when they leave aged 10-11 (NHS Digital, 2023). Figures are worse in boys (NICE, 2023) *(draft for consultation)*
- UK rates are the worst in western europe (WHO, 2022)

DEPRIVATION AND OBESITY:

- Children living in the most deprived neighbourhoods have over twice the prevalence of obesity than those in the least deprived (obesity: 30.2% vs 13.1%).
- For severe obesity, rates are more than 4 times higher for those children being raised in our most deprived neighbourhoods (>99.6 centile).
- The difference in childhood obesity rates between most and least deprived in the UK is larger than for any EU country (26 points compared to the EU average of 8 percentage points) (Holmes, 2021).
- Health Survey for England- Gaps are getting bigger, especially for women.

ETHNICITY AND OBESITY: People who identify as Black have the highest obesity rates than the national average, though how this is presented depends on the way we look at the data.

In year 6 children (2022/2023) the highest rates of overweight/obesity are children of Bangladeshi, Pakistani and any Black heritage.

DISABILITIES AND OBESITY: 41% of adults classified as living with obesity are disabled compared with 22% who are not (Office for Health Improvement & Disparities, 2023).

Obesity rates are very high for adults with severe mental health disabilities living in in-patient facilities (50%).

GEOGRAPHY AND OBESITY: The highest rates of obesity are clustered around economically deprived areas of urban areas in the north, coastal towns and parts of London (highest in North East and West Midlands regions).

DIETARY INEQUALITIES

Most of the UK population, including children, adolescents and adults are not eating a healthy diet, a pattern that is more pronounced in disadvantaged areas and populations.

We have evidence from national surveys and research studies. Specific values vary depending on when and how they were collected - but all tell the same story.

NATIONAL SURVEYS

Young children 1-5 (SACN, 2023) *and Years 1-9* (Public Health England, 2020).

- Intake of salt, free sugars and saturated fat are above recommended amounts, and fibre is below recommended levels.
- Children from lower income households are
    - less likely to consume adequate portions of fruit and vegetables
    - Less likely to consume oily fish
    - more likely to consume sugar-sweetened beverages
    - less likely to consume sufficient fibre
- Adults consistently fail to meet recommendations, particularly in low income households

COHORT STUDY RESEARCH *ALSPAC* (Buckland *et al.*, 2023)

- Most school-aged children (7-13) did not meet UK dietary recommendations, particularly children from lower socio-economic backgrounds.
- A lower socioeconomic status and maternal educational attainment and higher maternal BMI were associated with

meeting fewer recommendations.

Born in Bradford

- Poor diets start very early in life, with early introduction of solids and foods high in salt, sugar and fat (cakes, biscuits, potato shapes, processed meat etc. consumed at 12 months) (Sahota *et al.*, 2016)
- Food insecure mums and children have poor diet quality: fewer vegetables and higher sugar-sweetened drinks (Yang *et al.*, 2018)
- The association between food security, body weight and dietary intakes differed by ethnicity

Breastfeeding

- UK rates of breastfeeding are lower than many European counterparts and the US (Victora *et al.*, 2016)
- Breastfeeding is lowest among women from the most deprived backgrounds, white women, younger mothers, and women with lower levels of education (Oakley *et al.*, 2014)

Ultra-processed foods (UPF)

- 56.8% of total energy intake and 64.7% of total free sugars in the UK diet comes from UPFs (Rauber *et al.*, 2019).
- The UK has the highest UPF purchase rate in Europe at 51%, compared to only 14% by French families (Monteiro *et al.*, 2017).
- For illustration, if we were to remove ultra-processed foods from our diets, we could potentially reduce the prevalence of free sugar intake by 47%.
- In the UK, adolescents have the highest percentage of their diet comprised of UPF (compared to other age groups) (Rauber *et al.*, 2019).
- UPF make up 73% of primary school lunch calories (Parnham, Millett and Vamos, 2023).
- In the UK, adolescents from higher socio-economic backgrounds consume lower overall levels of UPF (62% of daily energy intake) than those from lower socio-economic backgrounds (69% of total energy intake) (Parnham, Millett and Vamos, 2023).

WHY DISPARITIES ARISE

Structural and social factors are at play: Wider determinants of health – the conditions in which we live and work and are raised as children all interact with biological influences on our appetite regulation to greatly influence the how, what and when we eat and, therefore, the type of health we can expect across our lifetime.

There are multiple overlapping and interacting factors – which are not evenly distributed. People don't experience adverse conditions or

inequalities in isolation. Many people face a combination of inequalities - ethnicity, deprivation, environmental

There are intersectional inequalities - cumulative effects of experiencing multiple adversities that all add up to increasingly poor dietary quality and poor health outcomes.

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Q2. What is the relationship between food insecurity, poor diet and obesity? DEFINITION Food insecurity - not having access to safe, nutritious food.

Hunger is a key part of food insecurity, but many people experiencing food insecurity lack access to foods with vital nutrients for health. It is often as much about what foods are NOT eaten as what ARE eaten - this is why it links to diet related disease.

PREVALENCE Food insecurity is not a marginalised issue - a quarter of the population (depends on data source)

EVIDENCE of relationship with diet and obesity

-Systematic review evidence from Teesside University- global evidence -36,113 adults and children (Eskandari *et al.*, 2022)

- Obesogenic food environments and food insecurity significantly contribute to obesity.
- People with food insecurity were 50% more likely to be affected by obesity (OR 1.5)
- There is a relationship between food insecurity, poor diet quality, (incl. lack of access to fruits and veg), reliance on fast foods and food insecurity
- Qualitative evidence from 19 studies in this review demonstrate a reliance on energy-dense, nutrient-poor foods due to their affordability, accessibility, and purchase of foods with extended shelf life
- Cost was a barrier to purchasing fresh fruit

-This is consistent with other data/reports (e.g. *Diet Related Health inequalities* - [UK Parliament Post, 2022*]):*

- Over half (58%) of food insecure households reported buying fewer fruits and vegetables between Sept-Oct 2022

-FIO Foods: Food Insecurity in people living with obesity (Johnstone *et al.*, 2022): Aiming to co-design of supermarket-based interventions that support people living with obesity and food insecurity to acquire healthy and sustainable food

Recently surveyed approx 600 adults living with obesity

- Higher food insecurity was associated with greater use of budgeting, supermarket offers, energy-saving appliances, and cooking resourcefully
- Budgeting - linked to poorer food quality

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Q3.How do inequalities in diet and obesity affect health outcomes? What role does the food environment play in these inequalities?

HIGHER PREVALENCE OF OBESITY IN SOME POPULATIONS PUTS THEM AT GREATER RISK OF MANY SERIOUS HEALTH OUTCOMES
(16 Billion / year cost to NHS;
far greater social economical impact):

- Type-2 diabetes, cardiovascular disease (CVD), liver disease, some cancers, musculoskeletal conditions, and poor mental health
- Adverse pregnancy and fertility outcomes, - gestational hypertension , gestational diabetes, infertility, and miscarriage (Seif, Diamond and Nickkho-Amiry, 2015)
- 8 times more at risk of Gestational diabetes - 23% compared to 3.4% - Meta Analysis 2021 -European 133 papers (n=15.5M) (Paulo *et al.*, 2021)
- Higher proportion of maternal deaths, especially women from Black family backgrounds (fourfold difference compared with women from White family backgrounds (NICE, 2023))
- Maternal obesity is associated with a 264% increase in childhood obesity in offspring (Heslehurst *et al.*, 2019)
- Lower life expectancy: From age 40 years, life expectancy is 4.2 years shorter in men with obesity and 3.5 years shorter in women (Bhaskaran *et al.*, 2018). This is worse in those with learning disabilities, who die 16 years earlier (Raleigh, 2022)

HEALTH INEQUALITIES MEAN THAT: People living in England's **MOST DEPRIVED AREAS** are:

- almost 4 times more likely to die prematurely of CVD than those in the least deprived areas (OHID, 2022).
- 30% more likely to have high blood pressure, the biggest single modifiable risk factor for heart attack and stroke (OHID, 2022).
- 24% of people with Type 2 diabetes in England come from the most deprived areas, compared to 15% from the least deprived (UKHSA, 2019).

POOR HEALTH STARTS IN CHILDHOOD: Obesity is no longer an issue solely because of its persistence into adulthood.

Meta-analysis of global data showed increased risk of liver disease and diabetes indicators (Sharma *et al.*, 2017). Our NHS data shows a worrying increasing prevalence of type II diabetes in children - something that was unheard of 10 years ago.

ALSPAC DATA: Obesogenic dietary patterns in childhood (7-10 years) are related to increased arterial stiffness, while Mediterranean-style and anti-inflammatory diets are related to decreased arterial stiffness in adolescence (Buckland *et al.*, 2024).

Mental health concerns - Food insecurity and free school meal eligibility is negatively associated with self-esteem, academic performance and future earnings potential in children.

>3,300 DAILY OBESITY RELATED HOSPITAL ADMISSIONS in 2022-23. Twenty three
were under 16s, a 323% increase in 10 years (NHS Digital, 2023).

ENVIRONMENTAL CONTRIBUTION

The environment Interacts with many other factors - including our **drive to eat** AND, for many, the **biological drivers that impact appetite regulation** (Agurs-Collins *et al.*, 2024).

The neighbourhood-built environment, including the nutrition environment contributes to CVD risk through its impact on diet quality and obesity risk (Kris-Etherton *et al.*, 2020).

Areas of high deprivation have:

Relatively affordable, high availability of less healthy food and drink products.

More fast-food outlets - up to 5x as many unhealthy food outlets as those that are less deprived (Public Health England, 2017).

Disproportionate exposure to unhealthy food advertising (Boyland *et al.*, 2022)

We have too many unhealthy places:

Unhealthy food is promoted in almost all of our settings… our workplaces, our schools, our leisure centres and our highstreets

- Schools are faced with multiple challenges, particularly related to cost, that mean that they are often unable to prioritise food and our secondary schools still have vending machines.
- Fast food outlets still surround our schools and places of work
- Systematic review evidence shows positive correlations between ethnicity, obesity and fast food presence (mostly USA data [Matsuzaki *et al.*, 2020]).
- Adolescents attending schools near fast food outlets are more likely to skip lunch and buy a more affordable and preferred meal at neighbouring takeaways (Caraher, Lloyd and Madelin, 2014).

- In a survey of 2,500 children in the London Borough of Brent, students from schools with no nearby takeaways were less likely to visit a hot food takeaway than students from schools with nearby takeaways (43% vs 62%) (London Borough of Brent, 2014).

Healthy food costs more

- Weekly food basket gone up by 25% since 2022 (The Food Foundation, 2023)
- Healthy food twice as expensive per calorie (The Food Foundation, 2022b)
- Servings of healthy food are also more expensive (Rao *et al.*, 2013)
- To follow Government's guidelines on healthy eating:
    - The poorest 20% of UK households would spend 50% of disposable income on food
    - The most well off 20% would need to spend 11% of their disposable income

(Public Health England, 2018; Scott, Sutherland and Taylor, 2018)

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Q4 What are the main drivers of food poverty and inequalities in diet?

FOOD POVERTY IS NOT A MARGINALISED ISSUE. Food insecurity impacts 20-25% of the population depending on data (Food Standards Agency, 2024)

Free School Meal eligibility increased from 15% in 2019 to 24% in 2023 (GOV.UK, 2023)

Families must be in receipt of welfare and must have an annual household income of less than £4,700 to be eligible for free school meals.

There are 2472 Food banks and other CFAs in the UK - more than the total number of Sainsbury's, Morrisons and Asda put together (Doherty and Hadley, 2023).

MOST VULNERABLE: One particularly affected population is families (especially those with young children - (The Food Foundation, 2022). Food insecurity is also high in single parent households, people with disabilities and people without stable homes

Food insecurity affects working people too, many of whom don't meet eligibility criteria for means tested benefits, including Free School Meals. Even people who work
full-time on the National Living Wage cannot necessarily achieve the Minimum Income Standard (Yau *et al.*, 2020).

Food insecurity is worse in some geographical areas - including poorer urban areas and some rural, coastal areas.

A higher proportion of available budget is spent on food in the most deprived. The poorest fifth of UK households would need to spend 50% of their disposable income on food to follow the Government recommended healthy diet, compared to 10% for the richest fifth.

Food insecurity disproportionately affects households on Universal credit: In a January 2024 survey, almost half of households in receipt of Universal credit reported

experience food insecurity (45.4% compared to 11.7% among non recipients - [The Food Foundation, 2024a]).

MAIN DRIVERS OF FOOD INSECURITY:

- Food insecurity is linked to wider economical factors: Poverty, low income, unemployment, falling wages, income variability/unpredictability
- There has been an unprecedented rise in food insecurity since the cost of living crisis, and Ukraine war
- Rates of inflation have been highest with food, especially healthy foods, which are twice as expensive than unhealthy foods (The Food Foundation, 2024b)
- Eligibility criteria for welfare support, including Free School Meals are too stringent and not aligned with actual needs
- Food choices are influenced by unhealthy food environments, which are worse in areas of deprivation (more fast-food outlets, cheaper, energy dense, easy to access and highly marketed)
- Access and affordability of healthy options is low in more deprived areas (Eskandari *et al.*, 2022). Nanny state arguments miss the point. People living in areas of high deprivation don't have a choice. They can't choose healthy food within their budgets

MECHANISM LINKING FOOD INSECURITY AND OBESITY - There are a number of
different hypotheses to help explain this relationship and these have been nicely described in a recent PhD thesis by Dr Zoe Bell at Newcastle University:

- Meeting energy needs at a lower cost - compromise food choice and linked to environment = Energy density framework
- Overeating to compensating/preparing for when money will be short = Cyclical framework - based on variation in income over a week or month
- Physiological adaptation to increase fat storage when food is scarce
- Chronic stress caused by food insecurity increasing drive to eat
- Programming during pregnancy - malnutrition in pregnancy linked to low birth weight is associated with increased risk of childhood obesity - and rapid excess weight gain

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Q5. How effective are current local and national approaches to reducing inequalities in diet and obesity and preventing associated health outcomes?

Focusing only on individual behaviour change is **unlikely** to be successful at reducing inequalities. Systematic, strategic change is required to address the complex economic, social and commercial factors that make healthy eating harder.

However, in evidence of behaviour change interventions: multicomponent interventions (diet and physical activity) are more effective than those that focus on single behaviours (Brown *et al.*, 2019).

Modelling of these smaller effects indicates cost savings, but LONG TERM DATA ARE NEEDED.

We have less evidence that individual behaviour change interventions reduce inequalities (all evidence points towards the most wealthy benefiting the most). Modelling methods for longer-term forecasts are also uncertain (Dötsch-Klerk *et al.*, 2023).

Population based interventions that tackle the wider determinants indicate the strongest impact is on populations of lowest deprivation - who face the great environmental issues.

Systematic review of socioeconomic inequalities in the impact of interventions that promote healthy eating (McGill *et al.*, 2015).

- Interventions that reduce inequalities most were those focused on "Price" (especially those those combined taxes and subsidies)
- These were more effective in groups with lower SES (10 of 18 studies)
- Four of six "Place/Environment" interventions were likely to reduce inequalities
- Interventions that widened inequalities: "Person" interventions (e.g. dietary counselling) were more effective in higher SES groups (8 of 18 studies)

Umbrella review undertaken to explore if food environment policies reduced inequalities (including taxation) (Løvhaug *et al.*, 2022) - Norway

- Explored policies on: food composition, food labelling, food promotion, food provision, food retail and food pricing.
- Results - food taxation may reduce inequalities, but the evidence base was poor for all other policies.

Sugary Drinks Industry Levy

- Tiered levy on sugary drinks to encourage reformulation. Announced 2016. Launched 2018
- Reduced sugar in drinks, some reduction in sugar intake, improved rates of admission to hospital for dental caries (especially most deprived), especially very young; and obesity in Year 6 girls (Rogers *et al.*, 2023)

Ban on Junk Food Advertisements

Consistent benefits based on studies for Transport for London, restricting TV advertising etc. For example:

Review of reviews (Coleman *et al.*, 2022) - children's TV and online advertisement restrictions

- Statutory regulation is potentially cost-effective (resulting in healthcare savings outweighing implementation costs) according
- Voluntary restrictions are not effective based on before/after studies.

Transport for London ban (Natural experiment), on junk food advertising (Yau *et al.*, 2022)

- Average weekly household purchases of energy were 7% lower than predicted without the ban. Reductions were seen in fat, saturated fat, and sugar content. The largest reductions were seen for energy content from chocolate and sweets
- 94,867 (4.8%) fewer individuals with obesity, a reduction in incidence of diabetes by 2857 cases, and cardiovascular disease by 1,915 within three years
- 16,394 additional quality adjusted life-years and saving £218m in NHS and social care costs over the lifetime - with the most deprived seeing greatest benefits (37% higher gain in QALYs, and additional £1m in NHS and PSS cost savings per 100,000, than those least deprived (Thomas *et al.*, 2022).

Modelled potential health impact of restricting less-healthy food and drink advertising on UK television between (Mytton *et al.*, 2020).

- With 1.5 fewer HFSS adverts seen by children per day = 9kcal decrease per day; 3.6- 4.6% reduction in obesity in some children; 40,000 fewer cases of obesity

Restrictions to Fast Food outlets near schools

50% of local authorities in England use planning guidance to restrict new fast-food outlets, though few have been evaluated.

Local planning policies can reduce the number of fast food outlets. Brown *et al.* (2022) compared Gateshead (area in the North East that implemented 3 new planning policies) with another similar area in the North East that did not implement planning guidance.

13.9% reduction in proportion of fast-food outlets in Gateshead compared to comparator local authority.

NB: Early evidence - need more longer time studies.

Nutritional labelling

Recent study = reduction in obesity, reduction in CVD (Colombet *et al.*, 2024) - but greatest effects when labelling policy included all out-of-home food businesses - not just the current policy of those with >250 employees.

Systematic review and meta-analysis (Croker *et al.*, 2020) - UCL - Significant decrease in sugar and salt content of purchases with traffic lights labelling.

Another study in the UK (Fichera and von Hinke, 2020) - explored impact of nutrition labelling in-store bought products (brought in by the UK Food Standards Agency in 2006).

Labelling increased quantity and nutritional quality of purchases of store-brand foods. Monthly calories reduced by 588 kcal, saturated fats by 14 g, sugars by 7 g, and sodium by 0.8 mg.

The effect was larger for lower social class households.

School interventions

Very important environment - 30% intake in children - but under pressure AND funding constraints = Food not prioritised.

The UK lacks consistent policies regarding school food environments, leading to variability in food environment quality and dietary intake (Lalli *et al.*, 2024).

The school food offer is based on affordability and (in some

cases) profit. There are still vending machines in secondary

schools.

A 'whole school approach to food' has been advocated by the WHO and in the UK Levelling Up White paper - creating a culture of healthy eating; supportive food environments, consistent messages and policies, stakeholder engagement. However, this is not well implemented or monitored. Head teachers tell us that they will only do it if it is mandated (FixOurFood, 2024).

We understand school food systems (Bryant *et al.*, 2023) and have developed free resources for schools to develop policies (CONNECTS-Food, 2022). We worked with DfE but this has yet to be integrated into policy.

Multi-component interventions could reduce BMI in children. Southampton research highlights the importance of engaging with key stakeholders (Jacob *et al.*, 2021).

Why provide universal free school meals:

- Essential, -and often ONLY- hot meal for many children.
- Universal provision - level playing field AND reduces stigma.
- School meals are better quality than packed lunches (Evans *et al.*, 2020).
- Modelling suggests that, for every £1 invested, there would be up to £1.71 return on investment (Impact on Urban Health, 2022).

Reduce low eligibility for means tested FSM- means that many families with food insecurity are missing out (Yang *et al.*, 2022).

Centralise automated systems to register FSM -
250,000 children (11%) are missing out every day and schools miss out on funding because free school meals are only awarded to parents/carers who submit an application. Through FixOurFood and Bremner&Co, we are supporting local authorities to implement auto-award approaches. Early evidence shows that this is identifying thousands of additional children who were entitled by not being registered; also bringing in millions of pounds of funding to schools (via pupil premium).

Breastfeeding interventions

- dose-response effect in breastfeeding, with the greatest protective effect against obesity for children who are breastfed for longer (Qiao *et al.*, 2020).
- The Lancet's series on breastfeeding last year provides insights into areas of intervention AND argued that the formula industry exploits parental concerns and uses unfounded product claims in advertising, in violation of the International Code for Marketing of Breast-milk substitutes (Pérez-Escamilla *et al.*, 2023).

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Q6 What are likely to be the most effective strategies for reducing inequalities in diet and obesity in the future? What evidence supports your proposals?

THERE IS NOT A SIMPLE SOLUTION TO THIS. WE NEED TO TACKLE INEQUALITIES IN DIET AND OBESITY FROM MANY ANGLES - SUPPORTING THOSE WHO LIVE WITH OBESITY BY EQUAL ACCESS TO TREATMENT AND TARGETING MULTIPLE INTERACTING FACTORS FOR PREVENTION EFFORTS.

-Addressing wage-related policies to ensure sufficient income for adequate standards of living is critical to address health inequalities - Teesside University (Eskandari et al, 2022).

-ENACT THE MANY POLICIES that have been delayed or suspended - that have been designed to meet the target to half childhood obesity by 2030.

-Address the high and rising cost of food, especially healthy foods - (Yau *et al.*, 2020).

- Consider community food organisations (including food banks) as a key part of the food system. There are now more food banks than retailers, supporting thousands of people every day. See links below for our ongoing NIHR funded research in this area.
This research is being done in partnership with DEFRA and local authorities:

Study website -

https://www.fairfoodfuturesuk.org/

Study update of findings (April 2024) - https://static1.squarespace.com/static/6526d0f770829d7e2f5492c2/t/6616bad788b3282fd5dd7c45/1712765658495/Fair+Food+Futures+UK+%28ActEarly+Conference%29.pdf

Early evidence of scale of community food assets - https://www.bradfordresearch.nhs.uk/wp-content/uploads/2020/11/Maria-Bryant-Updated-Interi m-Report_CFA-1.pdf

- **Enforce statutory (not voluntary) measures: including extending sugary drinks tax to foods high in salt, sugar and fat**

-Address Food marketing - including on transport for the whole country - not just London. There is enough evidence that shows we need to put a stop to marketing unhealthy foods to children (Boyland *et al.*, 2022)

-Improve food environments-statutory measures - schools, hospitals, work, leisure centres

- Mandating planning rules for fast food
- Labels for all out of home food - not just those with more than 250 employees
- Consistent approaches needed to support food choice and establish positive habit e.g. Whole school approaches to food are recommended by WHO and our own UK Levelling White paper, but take up will not be inconsistent unless it's mandated.

-Provide free school meals - where 30% of food intake happens in childhood (school meals better than packed lunches (Evans *et al.*, 2020).

-Stop paperwork and politics being a barrier to enable people to access the welfare support they are entitled to - including FSM, where over 200,000 children are missing out on FSM every day - We have the ability to instigate a national approach to automatically enrol children who are entitled using welfare data. FixOurFood provides evidence of impact of auto-enrolment but also of need for central adoption (call to do this by 2025).

-Support schools to prioritise food - ensuring adequate funding for food and other whole school approaches to food, monitoring uptake and reducing pressure to do well in English and Maths at the cost of other areas. Lunch times are rushed and there is a lack of food and cooking education in schools.

-Consider opportunities to jointly promote human and planetary health Systematic review (Kowalsky, Morilla Romero de la Osa and Cerrillo, 2022) - need to focus on both - Based on research coming from SPAIN, S. America and the UK (example below).

The UKRI funded Food system transformation programme is doing a lot in this space. It includes work led from University of York - FixOurFood - delivering action oriented research - farming, business, early years and school settings - targeting whole populations and those in greatest need.

EVIDENCE PROVISION IN THIS RESPONSE

We already have a lot of evidence - but there is a greater need to fund research for longer periods of time - so that we are not reliant on modelling alone to predict longer term impact

There are opportunities for greater use of routinely collected information and we need to invest in ways to ensure these data are of high quality.

Many systematic reviews provide evidence to suggest we need wide-reaching, multi-level approaches (including policy changes) to address overweight/obesity with food insecurity, especially among those whose food choices are influenced by unhealthy food environments. Systematic reviews: (Danielli *et al.*, 2021, McGowan 2021)

Multi-level / multi-component / city-wide approaches
Systematic review (Danielli *et al.*, 2021) found that interventions aimed at the individual, community, and city level are needed to address obesity. These include interventions delivered in school and childcare settings, changes to the food environment, reducing poverty, and regulatory intervention.

Umbrella review (McGowan *et al.*, 2021) found that place-based interventions (e.g. provision of parks and playgrounds, supermarkets, cycle lanes, walking routes, outdoor gyms) can be effective at improving physical health, health behaviours and social determinants of health outcomes, with greater improvements for those living within closest proximity of interventions.

WHO recommends a suite of interventions to prevent obesity in their 2022 European obesity report. There is no single intervention that can halt the rise of obesity and inequalities, a range of policies are needed to target prevention across the life course.

Evidences based interventions (cited within the WHO report) include:

- Preconception and prenatal care: food vouchers for new parents and monitoring and counselling during pregnancy
- Infancy: breastfeeding support, reformulation of infant food, accurate labelling of baby foods, monitoring of child growth and macronutrient status, plus counselling
- Childhood (1-10 years): whole school approach to food and physical activity, encouraging active travel, nutrition education and cooking skills
- Adolescence (10 -19 years): whole school approach to food and physical activity, nutrition education and dietary interventions, control of unhealthy food outlet near schools
- Adulthood (19 - 60 years): workplace physical activity programmes, nutrition counselling and education in workplaces, community based cooking programmes, health promotion programmes for out of work adults)

- Older people (60 years and older): nutrition education and counselling in hospitals, support provision of healthy community centres & care homes)

Systematic review for sustainable diets
Systematic review (Kowalsky, Morilla Romero de la Osa and Cerrillo, 2022) on Sustainable Diets as Tools to promote human and planetary health - found that a calorie-balanced diet mainly based on food of plant origin that would allow the attainment of 60% of daily caloric requirements and a low protein intake from animal foods (focusing in fish and poultry) could significantly reduce global mortality and the dietary environmental impact.

This requires the triangulation of concepts of food–health–environment from children in schools, and that is permanently reinforced during all stages of life, both for the healthy and ill.

Review of Reviews of Fiscal strategies
An umbrella review (Thomson *et al.*, 2018) identified five reviews which examined the effects of fiscal intervention on health inequalities associated with food and nutrition identified several potentially promising interventions for reducing health inequalities in high income countries including: food subsidy programmes (e.g. food stamps) and school fruit and vegetable schemes. Taxes on unhealthy food were also promising (as above).

Women with severe food insecurity had lower odds of obesity if they were usually or always able to afford fresh fruits and vegetables in their neighbourhood (Ro and Osborn, 2018).

Auto-enrolment of welfare support - Parents/carers have to apply for FSM. 11% (~215,000 children) who could, but do not receive a free meal at school (Lord et al., 2013). This is a relatively simple fix: Set a timeline for central adoption of auto-enrolment processes by 2025.

"*complex data, systems, financial and legal implications*" cited as key barriers

Sheffield council launched auto-enrolment in 2016. Year 1:, an additional 1,483 children, £1,392,600 Pupil Premium. Year 2: 418 children, £129,530.

FixOurFood: 8 launched in 3 months; 5 provided data = 2,814 children, £4.7M Lambeth Case Study: 50% auto-enrolled did not speak English as first language 30 local authorities involved; Pan London

Parliamentary questions have raised in to exploring merits of proactive use of data by local authorities (Peter Aldous, Baroness Boycott):

Answers: "*eligibility checking System has been provided to make the checking process as quick and straightforward as possible*"
"*merit in local authorities exploring initiatives to maximise take up and to better understand the barriers that prevent such take up, whilst ensuring adherence to legal and data protection constraints*"

11 April 2024

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