EVIDENCE BRIEF — DEFRA NATIONAL FOOD STRATEGY

Multilevel approach to childhood overweight and obesity

Lavis A.[*], Potter C.[†], Eli K.[‡], Parrish S.[¤], Nowicka, P.[•] & S. Ulijaszek[¤] | July 2020

Overview

Childhood overweight and obesity rates are highest in areas of greatest deprivation and have increased in England among girls at Reception age and boys and girls at Year 6 since 2006-7, when the National Child Measurement Programme was initiated, especially among BAME populations[(1)]. Obesity creates long-term illness susceptibilities especially in relation to most chronic diseases and physical disability[(2)], as well as being a recently-identified important risk factor for severe Covid-19 infection[(3)]. Childhood obesity is an amplifier of socioeconomic inequality[(4)], food insecurity associated with low socioeconomic status being a causal factor in the development of obesity[(5)].

Food insecurity affects economically deprived groups in the UK, with unemployment, disability and low income all being associated with it. Severe food insecurity has worsened among low-income adults in the past two decades[(6)], particularly among those with disabilities. Food and its consumption are culturally mediated, with food choices never being solely individual[(7)]. Understanding and acting on the impact of entrenched relationships between food scarcity, inequality and deprivation, and childhood overweight and obesity requires a multifactorial, multi-level approach[(8)].

Reviews and research from the Unit for BioCultural Variation and Obesity, University of Oxford, undertaken in the past decade, have integrated health, eating and culture to analyse obesity, food poverty/insecurity and their intersections. In challenging individualised notions of vulnerability, our work builds the evidence base for appropriate societal-level prevention and intervention.

Key Information

1. Childhood overweight and obesity rates highest in areas of greatest deprivation, and are associated with food insecurity.

2. Current approaches to childhood obesity policy are often narrowly individualistic, delegating responsibility for childhood obesity to parents and overlooking structural and cultural factors.

3. A multi-level approach allows for acting on the relationships between food insecurity, inequality, deprivation, and childhood obesity.

[*]University of Birmingham, Institute of Applied Health Research; [†]University of Oxford, Nuffield Department of Population Health; [‡]Warwick University Medical School; [¤]University of Oxford, School of Anthropology and Museum Ethnography; [•] Uppsala University, Department of Food Studies, Nutrition and Dietetics

Links between inequality and childhood overweight and obesity (COO) cut across levels, from the individual, family and community to broader historical and socio-political settings. These can be categorised as follows:

Microlevel

Longitudinal analysis of UK cohorts shows that adult obesity can be effectively predicted from measures in early life and these could be effectively mobilised for early identification and evidence-informed interventions[9]. Childhood obesity is caused by intergenerational cycles of parental nutrition, including both under- and over-nutrition, leading to transgenerational transmission of metabolic disorders. These epigenetic mechanisms are thought to be mediated by diet, chemical exposure, and high levels of environmental stress[10], including the effects of chronic poverty and racism[11]. Diet is not simply a matter of individual food choices, as eating patterns, healthy or not, emerge from a multifactorial set of factors. They are structured by income, access to food, cultural frameworks, food advertising and promotion[12], as well as stress and anxiety associated with low social position, poor employment circumstances, sexism and racism[13]. Disordered eating may also be a mode of coping with existential difficulties, including trauma, low social capital and socioeconomic disadvantage[14].

Mesolevel

Childhood and adolescent overweight and obesity are perpetuated through socioeconomic (SES) differences, and also potentially by stigma and by the negative bias of health care practitioners. Individual and area level SES are important predictors of childhood obesity, and SES differences in body fatness are already manifest in early childhood. A Swedish model for the understanding and prediction of childhood obesity in relation to psychological and emotional distress, tested using Danish cohort and National Registration data, confirmed that economic, social and psychological insecurity and inequality during childhood leads to obesity in adolescence and early adult life, especially in females[13]. Stigma surrounding childhood obesity produces further social disadvantages in employment, education, healthcare, and interpersonal relationships for obese children[14]. Across cultural groups and even within households, perceptions of healthy and appropriate body size and healthy eating often vary among individuals, as well as in relation to healthy norms as presented by public health, which further contributes to increased childhood obesity [15]. Bringing public health into the domestic sphere is key to action at this level, something that the public health response to the Covid-19 outbreak in lockdown showed to be highly effective.

Macrolevel

The ‘obesogenic environment framework’ describes broader structural factors that predispose individuals and communities to higher rates of childhood overweight and obesity[16]. Access to good food and telling people what to eat and feed their children, does not actually solve problems that are much more complex[2]. For example, the globalised food system facilitates the growth of retail of, and access to, ultra-processed foods, which are associated with higher obesity rates[17]. The penetration of sugar and high fructose corn syrup in global food markets both contribute to the rise of obesity and type two diabetes, through consumption decisions made at the household level[18]. The responsibility for childhood overweight and obesity due to disproportionate exposure to obesogenic environments in areas of deprivation cannot be shouldered by parents alone. Individual food choices are both structurally constrained and culturally-shaped at the microlevel such that access to healthy food, and public health advice regarding what people should at and feed their children, does not solve problems that are far more complex and higher-level. This disconnect can make such advice to seem alienating and uncaring to the key groups and populations that it is aimed at, leading to failure of interventions.

Appropriate intervention: Where the responsibility lies

Childhood obesity policy requires a framework that both recognizes the historical circumstances that have structured inequalities, and employs a forward-looking approach that includes collective responsibility for improving those circumstances. In spite of the recognised complexity of inequalities in childhood overweight and obesity, the discourse of personal responsibility in public health rhetoric places parents as central to the regulation of their children's weight and height[19], and blame for intergenerational patterns of obesity is frequently assigned particularly to mothers[10, 11, 20]. While the potential of parental action to help prevent childhood overweight and obesity should not be neglected, it does not make sense to blame parents for childhood obesity when structural factors favour the production of obesity[16]. Parents of overweight or obese children are confronted with media-driven social stigma around fatness[21], and an obesogenic environment that advertises and promotes the consumption of unhealthy foods to children. Industry strategies promoting narrow epidemiological understandings of obesity shift blame from foods to diet[2], which is constructed by individuals from individual foods. This currently dilutes regulatory actions in relation to obesogenic foods and again delegates responsibility for childhood obesity to parents.

Strategies around healthy eating should acknowledge entangled relationships[22] between food insecurity, poverty, racism and disordered eating and obesity. Inequality and deprivation contribute to these relationships, while culture may offer resilience against the worst excesses of obesogenic environments. Interventions around healthy eating are informed by seemingly intractable boundaries between public-private and outside-inside. The public realm—including spaces such as schools, supermarkets, and GP surgeries—is a focus of policy intervention, while private dwellings are not; yet the everyday spaces of home are where eating patterns that will lead to long-term health outcomes are most solidly formed[23]. In taking a multi-level approach to food and environmental policy, Defra is uniquely positioned through the National Food Strategy to address health inequalities through policies that improve the wider food environment for all, while enhancing the micro-environments that enable people to live well without economic and social penalties.

References

1. National Child Measurement Programme (2020). Patterns and Trends in Child Obesity: National and Regional Data. London: Public Health England.
2. Ulijaszek, S.J. (2017). Models of Obesity. Cambridge: Cambridge University Press.
3. Sattar, N., McInnes, I.B. & McMurray, J.V.J. (2020). Obesity is a risk factor for severe COVID-19 infection: multiple potential mechanisms. Circulation 142: 4-6.
4. Ulijaszek, S.J. (2011). Childhood obesity as an amplifier of societal inequality in the United States. In D. Bagchi, ed., Perspectives on Childhood Obesity. London: Academic Press, pp. 463-74.
5. Dhurandhar, E.J. (2016). The food-insecurity obesity paradox: A resource scarcity hypothesis. Physiology and Behavior 162: 88-92.
6.Loopstra, R., Reeves, A. & Tarasuk, V. (2019). The rise of hunger among low-income households: an analysis of the risks of food insecurity between 2004 and 2016 in a population-based study of UK adults. Journal of Epidemiology and Community Health 73: 668-73.
7. Abbots, E-J., Lavis, A. & Attala, L., eds. (2015). Careful Eating: Bodies, Food and Care. Farnham: Ashgate.
8. Ulijaszek, S.J., Pentecost, M., Marcus, C., Karpe, F., Frühbeck, G. & Nowicka, P. (2017). Inequality and childhood overweight and obesity: a commentary. Pediatric Obesity 12: 195-202.
9. Potter, C.M. & Ulijaszek, S.J. (2013). Predicting adult obesity from measures in earlier life. Journal of Epidemiology and Community Health 67: 1032-7.
10. Millikin-Smith, S., & Potter, C.M. (2018) Paternal origins of obesity: emerging evidence for incorporating epigenetic pathways into the social determinants of health framework. Social Science & Medicine, Epub ahead of print, 7 Dec 2018. DOI: 10.1016/j.socscimed.2018.12.007
11. Warin, M., Moore, V., Davies, M. & Ulijaszek, S. (2015). Epigenetics and obesity: the reproduction of habitus through intracellular and social environments. Body and Society 22. doi:10.1177/1357034X15590485
12. Neuman, N., Eli, K., & Nowicka, P. (2019). Feeding the extended family: gender, generation, and socioeconomic disadvantage in food provision to children. Food, Culture & Society, 22, 45-62.
13. Poulsen, P.H., Biering, K., Winding, T.N., Nohr, E.A., Petersen, L.V., Ulijaszek, S.J. & Andersen, J.H. (2019). How does psychosocial stress affect the relationship between socioeconomic disadvantage and overweight and obesity? Examining Hemmingsson's model with data from a Danish longitudinal study. BMC Public Health 19, 1475. https://doi.org/10.1186/s12889-019-7699-8
14. Lavis, A. (2018). Not eating or tasting other ways to live: A qualitative analysis of 'living through' and desiring to maintain anorexia. Transcultural psychiatry, 55: 454-47.
15. Eli, K., Howell, K., Fisher, P. A., & Nowicka, P. (2016). A question of balance: Explaining differences between parental and grandparental perspectives on preschoolers' feeding and physical activity. Social Science & Medicine, 154, 28-35.
16. Ulijaszek, S.J., McLennan, A.K. & Graff, H. (2016). Conceptualizing ecobiosocial interactions: lessons from obesity. In M. Singer, ed. A Companion to the Anthropology of Environmental Health. New York: John Wiley and Sons, pp. 85-100.
17. Montiero, C.A., Moubarac, J-C., Levy, R.B., Canella, D., Louzada, M.L.C. & Cannon, G. (2018). Household availability of ultra-processed foods and obesity in nineteen European countries. Public Health Nutrition 21, Special Issue 1: 18-26.
18. Goran, M.I., Ulijaszek. S.J. & Ventura, E.E. (2013). High fructose corn syrup and diabetes prevalence: A global perspective, Global Public Health 8: 55-64.
19. Eli, K., Howell, K., Fisher, P.A. & Nowicka, P. (2014). "A little on the heavy side": a qualitative analysis of parents' and grandparents' perceptions of preschoolers' body weights. BMJ Open, 4(12), e006609.
20. Eli, K., Hörnell, A., Malek, M.E. & Nowicka, P. (2017). Water, juice, or soda? Mothers and grandmothers of preschoolers discuss the acceptability and accessibility of beverages. Appetite, 112, 133-42.
21. Eli, K. & Ulijaszek, S.J., eds. (2014). Obesity, Eating Disorders and the Media. Farnham: Ashgate.
22. Eli, K. (2018). Striving for liminality: Eating disorders and social suffering. Transcultural psychiatry 55: 475-94.
23. Pinard, C.A., Yaroch, A.L., Hart, M.H., Serrano, E.L., McFerren, M.M. & Estabrooks, P.A. (2012). Measures of the home environment related to childhood obesity: A systematic review. Public Health Nutrition, 15: 97-109.