Obesity and health inequalities

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Background

As countries get richer and healthier, the leading causes of death shift from infectious to chronic diseases (the epidemiological transition). But, despite increasing wealth, better population health and changes in the 'big killers', socioeconomic inequalities in health remain.

As countries move through the epidemiological transition, rates of obesity typically rise and their social profile changes (1). Thus, the positive association between wealth and obesity found among adults (particularly women) and children in low-income countries flattens out in middle-income countries before giving way to a negative association in high-income countries, where obesity risk is higher in lower socioeconomic groups (2).

Patterns of obesity in the UK are in line with other high-income countries. Thus, the rapid rise among children and adults has been associated with changes in its social profile. Socioeconomic inequalities were largely absent from children growing up in the 1960s (3). As rates have increased, inequalities in childhood obesity have strengthened, with rates increasing most among children from poorer backgrounds (4). A similar pattern is evident among adults, with rates of obesity highest among men and women in households in the lowest income quintile. This widening of obesity inequalities is more marked for women and when people's socioeconomic position is measured by education, an indicator that captures the influence of childhood conditions as well as those in adulthood (5).

Again, in line with other high-income countries, socioeconomic inequalities in obesity are stronger in girls than boys (6) and among women than men. Inequalities in obesity vary by ethnic group, with children and adults from some ethnic-minority groups at increased risk. Asian children are more likely to be obese than white children (7). Rates of adult obesity are lower than in the general population for men from ethnic-minority groups, with the exception of Black Caribbean and Irish men; rates are higher among Black African, Black Caribbean and Pakistani women.

Longitudinal studies are mapping how socioeconomic circumstances at different life stages influence obesity risk. They indicate that childhood circumstances may have an enduring influence on adult obesity, particularly for women. Even when there are no socioeconomic differences in obesity in childhood, inequalities in childhood circumstances can lead to inequalities in adulthood obesity (3). This is primarily due to differential weight gain across socioeconomic groups (8).

With excess body weight related to a range of major chronic diseases, socioeconomic differences in obesity are contributing to broader socioeconomic inequalities in health. The increasing socioeconomic differentials in obesity suggest we should anticipate increasing inequalities in obesity-related diseases. Such trends will make the Govern-

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ment's target of reducing socioeconomic inequalities in life expectancy harder to achieve.

Research approaches to inequalities in obesity

The fact that both the prevalence and the social patterning of obesity in the UK – and worldwide – have changed so rapidly suggests that adverse environmental factors are the primary cause, with genetic factors affecting individual susceptibility. Two complementary research approaches seem particularly important in addressing inequalities in obesity: (i) a 'life course' approach, which enables assessment of the critical and cumulative influences leading to obesity and how these act differentially over individual life courses to result in inequalities in obesity and (ii) an ecological approach, which allows the differential and integrated effects of the environment and society on individual obesity to be evaluated.

Research combining life course and ecological perspectives should be used to inform both our understanding of the environmental causes of obesity and the policies and interventions that could prevent or ameliorate it.

The life course approach

A particular challenge will be to establish how socioeconomic differences in obesity are transmitted and maintained over time and also to understand the processes involved. Most important are questions about whether and how inequalities can be minimized. Given these challenges, we would single out empirical studies, and the conceptual models they are informing, to map how factors operating from before birth and across the life course contribute to inequalities in obesity.

Life course and intergenerational studies are suggesting pathways through which social inequalities may become amplified over time. Notable here is a particularly robust finding that an individual with overweight parents is more likely themselves to be overweight (9). This observation does not necessarily reflect an entirely biological phenomenon, as it is acknowledged that social processes also play a part. For example, parents may not recognize obesity in their children, although their recognition increases with maternal education (10).

The combination of the socioeconomic pattern of obesity (with higher prevalence in less-advantaged social groups) and the well-documented intergenerational effects suggests that social inequalities in obesity will be reinforced over time. Additional reinforcing effects may occur because of the tendency of fatter mothers to have heavier babies, which in turn is associated with later obesity. Understanding how future national trends in obesity will be affected by these processes is an important challenge for research in this field.

In this regard, research on whether there are critical or sensitive periods in the development of obesity is promising (11). Periods during childhood and also during foetal development are receiving particular attention, partly because over-nutrition at these early life stages appears to have lifelong effects on obesity. Firmer evidence for (or against) this observation could indicate whether early life is a particularly important stage in which to intervene to prevent obesity in future generations.

While studies of the foetal period may be focusing primarily on biological mechanisms through which later obesity develops, at other life stages there is also an emphasis on social processes, particularly in regard to modifiable behaviour. Changes during adolescence may affect levels of obesity (11). There is, for example, a sharp decrease in physical activity among teenage girls and young women, which suggests that this is a potential period for prevention. Research examining life stages when interventions might be most effective will be relevant to policies aimed at reducing the current high levels of obesity and associated health inequalities.

In focusing on life stages when preventive strategies might best be targeted, there is an opportunity to draw on data resources that have accumulated over time, particularly from large national birth cohorts with information on obesity and the factors that potentially affect its development. The members of older birth cohort studies, who are now middle-aged or entering old age, were born before the current epidemic of childhood obesity. As the age groups in which rates of obesity and of obesity-related diseases are highest, they will continue to be a key source of information on the patterns and consequences of obesity. Younger birth cohort studies show a higher prevalence of childhood obesity and some studies have been designed to reflect greater ethnic/socioeconomic diversity. As these cohorts enter adult life, we will gain insights into life course influences on obesity in populations more representative of today's children (12).

An ecological approach

An obesogenic environment is likely to be the primary cause of the recent trends in obesity and its inequalities. Research to date has highlighted the differential prevalence of obesity by age, gender and socioeconomic position (see above) but has not explored in any detail the mechanisms by which the environment acts to create and maintain inequalities in obesity, nor how environmental or policy changes might ameliorate such inequalities. Models based on ecological systems theory are being used as frameworks for research on the environmental determinants of obesity. For example, the International Obesity Task Force (13) has set out a complex model of the determinants of obesity as shown in Fig. 1.

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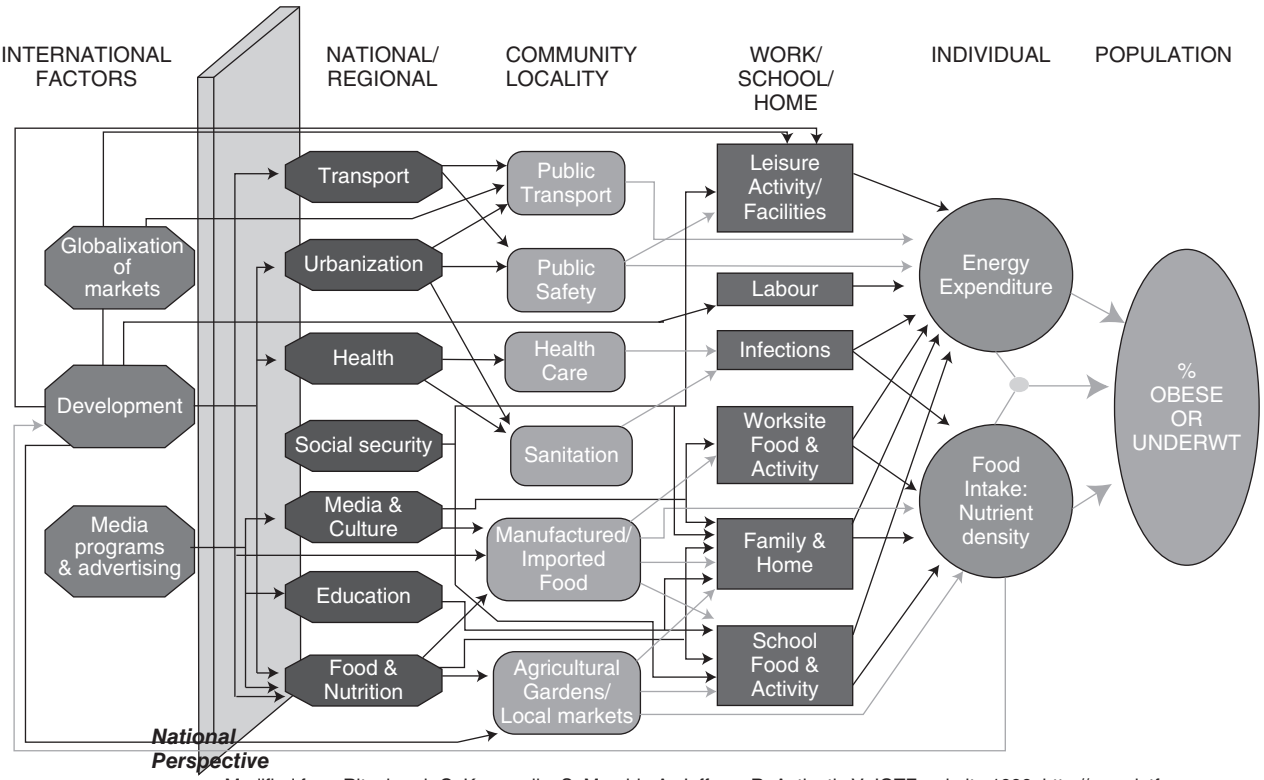

Modified from Ritenbrugh C, Kumonyika S, Morabia A, Jefferey R, Antipatis V. IOTF website 1999: http://www.iotf.org

Figure 1 Societal policies and processes with direct and indirect influences on the prevalence of obesity and undernutrition. Vertical and horizontal links will vary between different societies and populations.

Figure 1 highlights factors operating at different levels (global, national/regional, community, individual, etc.). For many of these factors, disadvantaged groups are likely to be more adversely affected than those in higher educational, occupational and income groups. However, there is as yet little research on how the determinants of obesity – from global to individual level – combine to produce and to amplify inequalities in obesity. Such research should be prioritized.

There is relatively more research on 'downstream' influences on obesity such as individual exercise or diet and relatively little on 'upstream' influences such as urbanization or food legislation (14). This reflects an imbalance in the research literature on inequalities in health more generally (15). This imbalance needs to be addressed in future work.

Trials of interventions at an individual and community level will undoubtedly contribute useful knowledge. However, many interventions to address an obesogenic environment, which is the primary cause of the obesity epidemic, are unlikely to be amenable to randomized experimental designs, particularly those aimed at changing 'upstream' influences. Furthermore, the high level of investment in the UK in policies to improve public health (16) has resulted in rapid innovation in public services, often without rigorous evaluation. The investment in policies needs to be matched by increased investment in evaluation research, including methodological development and economic modelling. The UK urgently needs mechanisms to ensure that policies are implemented in ways that make their effects, and their differential effects, on obesity capable of evaluation. Unless such evaluation is developed, we run the risk of continuing to be restricted by the current inadequate evidence base, despite large expenditure on new interventions.

Conclusion

Increasingly, the challenge to research for policy will be to investigate the interaction of social, behavioural and biological determinants of inequalities (10). There are studies that are beginning to investigate inequalities in the determinants of obesity, including both diet and the physical environment (17–19). But influences on obesity that are a function of the environment rather than of the individual are likely to be paramount in shaping behaviours. A research priority will therefore be to integrate information

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from life course research and from ecological studies dealing with macro-level influences. A more holistic approach to determinants of inequalities in obesity would permit analyses of (i) the interaction of personal characteristics and obesogenic environments and (ii) the impact of government policy on inequalities in obesity and its proximal risk factors.

Conflict of Interest Statement

No conflict of interest was declared.

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