

Editorial

Shining the ‘Spotlight’ on Obesity

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In his seminal book, ‘The Strategy of Preventive Medicine,’ the English epidemiologist Geoffrey Rose suggested that true epidemiology involves looking not just at the cause of a disease, but at the ‘cause of the cause’ and the ‘cause of the cause of the cause’ [1]. A quarter of a century earlier, Susan Sontag (‘Illness as Metaphor’) stated that: ‘any important disease whose causality is murky and for which treatment is ineffectual, tends to be awash in significance’ [2]. Marry these two thoughts, apply them to obesity, and you could come up with a different approach to managing the problem than what has been standard to date.

Explanations for the obesity pandemic have been many and varied. However, its concurrent onset in many countries and rapid rise over the past 3–4 decades suggests a pervasive underlying driver. There is a need therefore to consider beyond immediate (proximal) drivers such as diet and inactivity, which help explain individual variations in body weights in a benign environment, to more distal drivers that may help to explain its ubiquitousness in a variety of populations (fig. 1). This is the basis of the cross-European SPOTLIGHT (Sustainable Prevention of Obesity Through Integrated Strategies) project [3]. SPOTLIGHT is a multi-centre approach designed to provide evidence-based support for community-focussed multi-level interventions in obesity. It acknowledges the generally ineffectual approaches to date of focussing at the individual level and the potential significance of investigating determinants at a more distant level. A question remains however as to how distal the levels of causality that are considered need to be.

Accumulating evidence suggests that certain factors in modern growth-oriented, market-based economies make them more or less likely to produce negative effects of over-consumption, such as obesity. Several researchers have considered the effects of inequality: Marmot and colleagues [4], for example, have shown the impact of income differentials and workplace status on a range of health and social problems. Pickett et al. [5] and Wilkinson and Pickett [6] showed a relationship between inequality, as measured by the ratio of the difference between the richest and poorest 20% of income earners (RP20), and obesity in OECD countries, but no relationship between obesity and average income.

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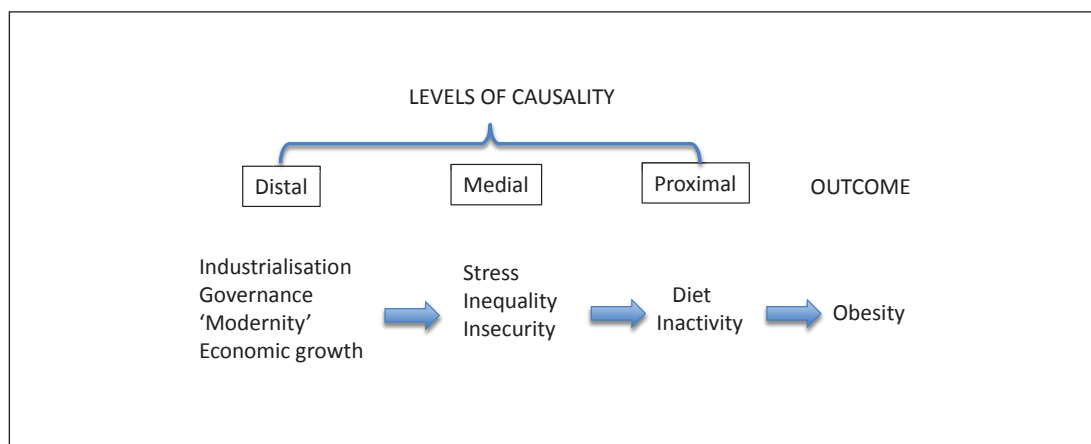


Fig. 1. Hierarchy of causality: examples for obesity.

Offer et al. [7] studied data sets from 11 advanced countries from 1994–2004 to test the effects of inequality and other factors on obesity. They show that while inequality is important, it is surpassed by a measure of economic insecurity based on a weighted composite of four sub-indices: security from unemployment, illness, single parent poverty, and poverty in old age. Offer et al. [7] showed that economic insecurity (and obesity) are greatest in a group of (mainly English-speaking) countries that they classified as 'market-liberal' (USA, Australia, Canada, New Zealand, UK, Ireland) in which these indices are worst, compared to a group that they rated as 'non-market liberal' (Norway, Sweden, Finland, Austria, Denmark, Germany) (table 1).

Using a different approach, we have proposed the modern system of economic growth, beyond a point we have called a 'sweet spot' [8], as the key distal driver (or 'cause of the cause') of obesity. While recognising that economic growth has been the single biggest contributor to human health in history [9], we have shown that a point is reached, particularly using the usual measure of economic success, or gross domestic product (GDP), where diminishing returns begin to result in decreased improvements in well-being. This is illustrated by such problems as environmental degradation and obesity, the latter of which has been described simply as '... collateral damage in the battle for modernity' [10] or '... an unintended but unavoidable consequence of economic progress' [11].

At first glance it may appear that these different approaches have little in common. However, our analysis of obesity levels and GDP across a range of countries [8] suggests all these views are valid, although a dynamic factor needs to be added to the discussion. Figure 2, for example, is a diagrammatic representation of the relationship between BMI and GDP in 175 countries set to the reference year 2007.

Using spline curve analyses, we found a close relationship between BMI and GDP to a point (around USD 30,000.– in 2007), but then little obvious relationship beyond that point. However, in comparing BMIs at the top end of the wealth scale (i.e. mean per capita GDP > USD 30,000.– per anno), there appears to be three distinct groups of countries based on a range of social and market-driven factors [8]. Interpreting these results, it appears that population levels of body weight, as measured by mean BMIs, increase with increasing per capita GDP, initially in a linear fashion, and then in an apparently unrelated fashion beyond a certain level of income. At low average per capita GDP levels there is no sign of mean BMIs in the unhealthy range (i.e. >24 kg/m² for populations [12]). Hence, the increase in BMI with

Table 1. Percent obese (BMI > 30 kg/m²) and mean age-adjusted total BMI for countries with highest and lowest income inequality (as measured by RP20 or ratio of highest to lowest 20% of income earners) with incomes over USD 30,000.– per capita per anno (USD 2007 values)

	Population size (× 1000,000) ^a	RP20 ^b	% obese ^c	BMI ^d
<i>Countries with highest income inequality</i>				
USA	308.7	8.4	33.8	28.46
UK	62.0	7.2	22.7	27.40
Australia	22.6	7.0	24.0	27.56
New Zealand	4.4	6.8	26.5	27.76
Ireland	4.5	5.6	13.0	27.66
Canada	34.4	5.5	23.1	27.46
<i>Mean</i>		<i>6.75</i>	<i>23.85</i>	<i>27.71</i>
<i>Countries with lowest income inequality</i>				
Sweden	9.4	4.0	12.0	26.37
Denmark	5.6	4.3	11.4	26.12
Germany	81.8	4.3	12.9	27.15
Austria	8.4	4.4	11.0	26.46
Norway	4.9	3.9	10.0	26.93
Finland	5.4	3.8	15.7	26.75
<i>Mean</i>		<i>4.12</i>	<i>15.74</i>	<i>26.64</i>

^aData source: Population (000,000s) 2010 national surveys.

^bData source: UN. Human Development Report 2007/0.

^cData source: WHO.

^dData source: www5.imperial.ac.uk/medicine/metabolic%5Frisks/bmi/.

GDP at these lower levels reflects a healthy increase in mean body weight of the populace. Beyond a point however, the form of governance driving growth and other social factors begin to become important. Looking at just the European populations here, wealthy countries separate, with those with more market liberalism as defined by Offer et al. [7] (also called 'hard' [10] or 'selfish' capitalism [13]) having higher levels of obesity than those with less market liberalism.

Put simply, neither social factors nor wealth nor form of governance per se appear related to unhealthy population levels of obesity (in contrast to healthy weight gain) – until a level of average wealth in a country is achieved. Beyond this, the form of governance, based on such factors as market liberalism, and levels of social support appears to become more associated with obesity.

Taken together, these findings suggest that the costs of economic growth, as reflected in increasing obesity (and related chronic disease), may be influenced by the market system instituted to achieve this – beyond a point we have called a 'sweet spot' [7] in growth. None of the early architects of the growth system – Smith, Mill, Keynes etc. – ever claimed that such an exponential system would be sustainable over the long term. It must, they implied, reach a point of diminishing and then negative returns, a point that most wealthy countries now seem to have attained.

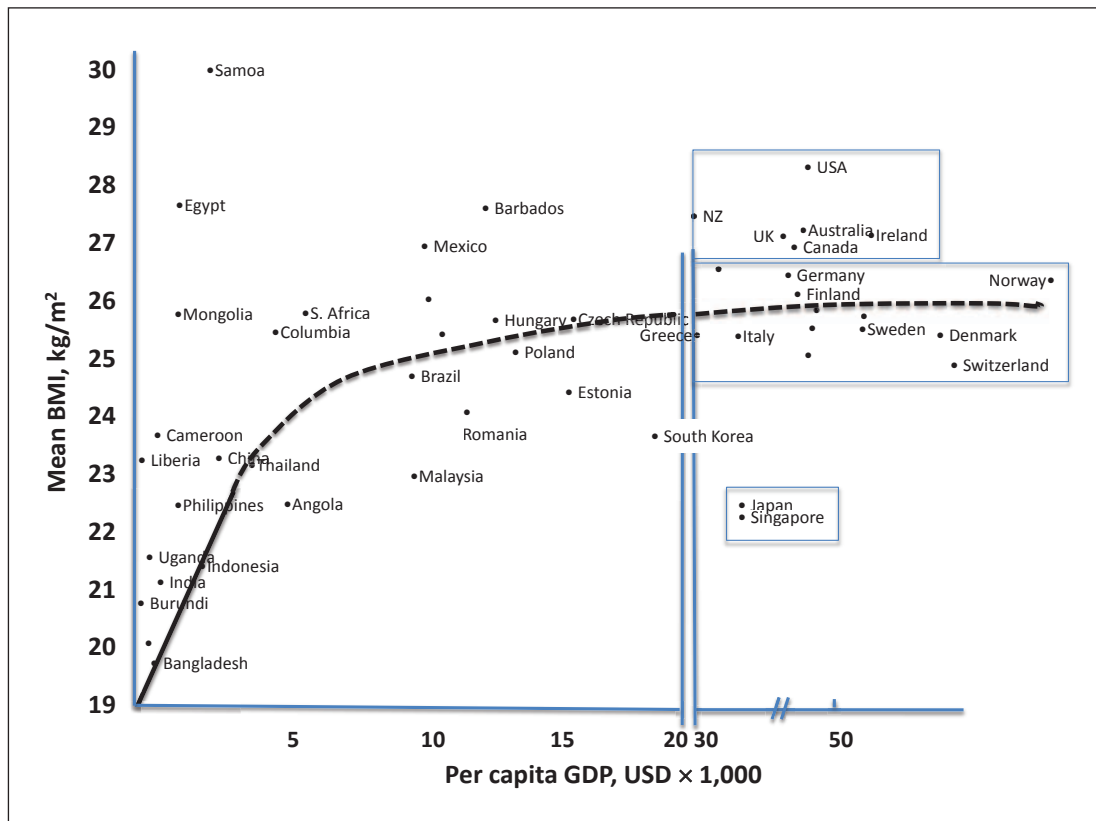


Fig. 2. GDP and BMI in 174 countries (2007; USD) showing a split in wealthy countries based on form of social factors governance.

As indications of overshooting the sweet spot are also reflected in environmental disruption and potential climate change, a broader, more multi-disciplinary approach as well as a deeper search for drivers is now called for in our understanding and management of obesity. We should also recognise the dynamic nature of what is often believed as unchanging, such as the need for indefinite economic growth – a least in its current form. To paraphrase Turkish Prime Minister Recep Tayyip Erdogan’s inadvertent slip about democracy: ‘... (economic growth) should be a tram you ride until you arrive at your destination, then you step off.’ Perhaps now is the time to consider whether we, in the health professions, should look to encourage politicians and economists to take that step if major inroads are to be made in the spread of obesity and the chronic diseases associated with this. The SPOTLIGHT program may offer a vehicle for doing this at a deeper level of causality. But will it be deep enough?

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