

# Is the obesity epidemic exaggerated?

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**YES** Media claims about an epidemic, its causes, consequences, and cure often exceed the scientific evidence and mistakenly suggest an unjustified degree of certainty. The fact that cases are “clearly above normal expectancy” anchors the concept of an epidemic. In this respect, describing obesity as an epidemic is subject to two difficulties.

## Definition of normal

Firstly, it is difficult to determine normal expectancy. Much of the data on overweight people and obesity are limited, equivocal, and compromised in terms of extent and the reliability of the measurements and the populations sampled. In the US, for example, data about population weights date from only 1960. Several pieces of evidence, however, suggest that the contemporary situation may be close to, rather than in excess of, normal.

The earliest national survey shows that in 1960 45% of the US population was overweight, according to sex specific weight for height tables (corresponding to a body mass index of 25 to <30).<sup>1</sup> In the 1970s, 22% of US men aged 18-19 were overweight compared with 16.7% of boys aged 12-19 in 2002.<sup>2</sup> Fogel's ongoing work in various countries on the relation between health, mortality, nutrition, and technology suggests that as populations grow healthier, prosperous, and long lived they gain in height and weight.<sup>3</sup>

Moreover, current data are highly equivocal in their support for claims of an epidemic. The average population weight gain in the US in the past 42 years is 10.9 kg or 0.26 kg a year.<sup>4</sup> Yet, between 1999-2000 and 2001-2002, according to the National Health and Nutrition Examination Survey, there were no significant changes in the prevalence of overweight or obesity among US adults or in the prevalence of overweight among children.<sup>2</sup>

## Association with mortality

Secondly, the determination of the categories of normal, overweight, and obese is entirely

arbitrary and at odds with the underlying evidence about the association between body mass index and mortality, a fact that destroys the index's scientific pretensions and diagnostic value. The bands for overweight and obesity in the US, for example, are the product of the 1997 National Institutes for Health task force report on the prevention and treatment of obesity that supposedly links these bands to increased risk of death. However, the study on which the report is based does not support these linkages.<sup>5</sup> It found that the death risks for men with a body mass index of 19-21 were the same as those for men who were overweight and obese (29-31).

The study's findings are not unusual. Flegal and colleagues found the weight group with the lowest death rate was overweight,<sup>6</sup> while Groninger's analysis found negligible differences in risk of death among people with body mass values from 20 to 25.<sup>7</sup> Even where there are significant associations, the risks are so modest as to be highly suspect. For example, whereas the reported lung cancer risks for smokers are typically 10-15 times higher than for non-smokers, the death risks for overweight and obese people are in many instances closer to 0.5-1.75 above those for people with normal weight.<sup>8</sup>

Despite the supposedly abnormal levels of overweight and obesity, life expectancy continues to increase. According to the UK Office for National Statistics, the current life expectancy of 77.2 years for men and 81.5 for women will rise by 2031 to 82.7 and 86.2, respectively.<sup>9</sup>

## Morbidity

Moreover, the association of overweight and obesity with higher risks of disease is equally unclear, partly because of the multifactorial character of these diseases. Increases in overweight and obesity have been paralleled by falls in US total cardiovascular mortality and mortality from coronary heart disease and stroke, as well as in prevalence of hypertension and hypercholesterolaemia.<sup>10-12</sup>

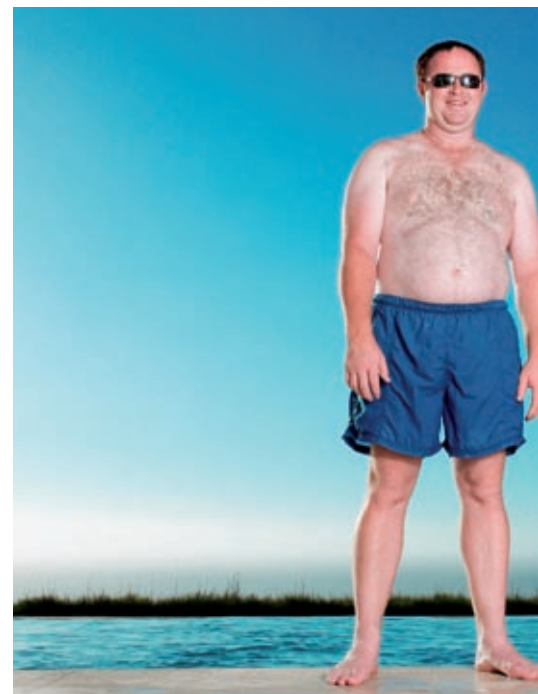
Several factors justify scepticism about the link between non-insulin dependent diabetes mellitus and overweight and obesity. They include the absence of compelling direct evidence that excess fat is the cause of insulin resistance, the fact that the link fails four of the

Austin Bradford Hill criteria for causality, and that increased physical activity and dietary changes reduce diabetes risk in advance of, or in the absence of, weight loss.<sup>13</sup>

There is considerable evidence that most fat adults were not fat children.<sup>14</sup> Moreover, the thousand families cohort study found both little consistency between childhood overweight and adult obesity and no net increase in adult risk of disease for overweight children or teenagers. Nor did childhood thinness protect against either adult obesity or coronary vascular disease.<sup>14 15</sup>

Some in the public health community believe that deliberate exaggeration or, indeed, misrepresentation of the risks of diseases or certain behaviours or our capacity to prevent or treat them on a population-wide basis is justified, if not demanded, in the interests of health. Since many of the exaggerations come from people who understand the scientific uncertainties around overweight and obesity, it seems that these individuals have adopted such an approach to the obesity epidemic. The unwelcome implications of this for science policy and for evidence based medicine dwarf those of any obesity epidemic, real or imagined.

Competing interests: None declared.



The UK health secretary declared last week that we are in the grip of an obesity epidemic. **Patrick Basham** and **John Luik** believe that the problem is less clear cut, but **R W Jeffery** and **N E Sherwood** say that obesity is a growing global problem

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**NO** An abundance of observational and experimental data show the growing prevalence of obesity, defined as a body mass index  $\geq 30$ , and the causal role of obesity in adverse health outcomes. These data substantiate our position that the seriousness of the obesity epidemic is not exaggerated. The fact that obesity is developing rapidly in many parts of the globe is incontrovertible. The World Health Organization's Global Database on Body Mass Index includes the most comprehensive international data available on obesity trends.<sup>1</sup> Absolute prevalence of obesity varies among countries (0.7%- 78.5%). However, large rises in prevalence have been observed across the globe over the past few decades. Rates of obesity in adults have roughly tripled in Japan (from 0.84% in 1980 to 2.86% in 2001), Brazil (from 2.4% in 1974-5 to 8.9% in 2002-3), England (from 6.2% in 1982 to 22.6% in 1999), the United States (from 11.5% in 1990 to 34.1% in 2004), and Seychelles (from 4.2% in 1989 to 15% in 2004) to give a few examples.<sup>1</sup>

The prevalence of obesity among children and adolescents has also increased greatly. The US National Health and Nutrition Examination Survey indicates that the prevalence of obesity in 1976-80 was 6.5% among 6-11 year olds and 5% among 12-17 year olds. In 2003-4 it was 19% and 17% respectively. These disturbing trends are mirrored in other countries. Prevalence of overweight among school age children has been reported as high as 35% in parts of Europe, and it has been estimated that the European Union can expect to see the numbers of overweight and obese children rising by around 1.3 million a year by 2010.<sup>2</sup> A recent review of childhood obesity trends from 25 countries with data on school age children and 42 countries with data on pre-school populations shows that obesity has increased in most countries, with the sharpest increases in economically developed countries and urban areas.<sup>3</sup>

#### Health effects

The adverse effects of obesity on health are well established, serious, and causal. Overweight and obesity increase the risk of many serious health conditions, including hypertension, hypercholesterolaemia, diabetes, coronary heart disease, and some forms of cancer.<sup>4-9</sup> A dose-response relation between body mass index and the risk of developing chronic diseases is even observed among adults in the upper half of the "healthy" weight range (that is, body mass index of 22.0-24.9).<sup>6</sup>

Increases in body weight are strongly associated with increased insulin resistance at the cellular level, which may be a fundamental mechanism driving many disease processes. Three large clinical trials have shown that behavioural interventions targeting weight reduction and physical activity in people with impaired glucose tolerance improve the natural course of diabetes.<sup>10-12</sup> Lifestyle change with a 7% weight loss delayed the development of type 2 diabetes in high risk individuals by 58% over four years compared with the control group.<sup>12</sup>

Because effective, sustained weight loss is not easily achieved clinically or by traditional public health education measures,<sup>13 14</sup> we are

facing the potential for a major health crisis. When will the obesity driven health crisis arrive and how serious it will be has been the subject of much speculation. Not all diseases related to obesity have paralleled obesity trends. For example, the incidence of cardiovascular disease incidence has fallen steeply as body weight has risen, perhaps because of improvements in diet or better treatments for risk factors such as raised blood pressure and blood lipid concentrations.

However, examination of trends in the disease most strongly linked to obesity, diabetes, is very concerning. Data from the Behavioral Risk Factor Surveillance System and the National

Ambulatory Medical Care Survey (1995-2004) show that during a period in which the prevalence of overweight and obesity increased by nearly 24%, the prevalence of diabetes increased by about 76% and the number of diabetes related visits to primary care doctors more than doubled.<sup>15</sup>

Health economists and epidemiologists have made projections about the potential impact of future obesity trends. Most agree that the contribution of obesity to current healthcare costs is high and that it is likely to get much higher.<sup>16-18</sup> Some have argued that we may even see real falls in life expectancy within a few decades.<sup>19</sup>

In summary, a large body of scientific evidence documents that overnutrition and obesity are a major global health problem. With the continuing rise in obesity and limited treatment efficacy, options for averting a poor public health outcome seem to rest either on the hope that scientists are wrong in their projections or speedy investment in the development of more effective public health measures to deal with it. We think the second option a more prudent scientific and policy choice.

RWJ is supported in part by National Cancer Institute grant (transdisciplinary research on energetics and cancer) CA116849 and National Institutes of Diabetes and Digestive and Kidney Diseases grant (Minnesota Obesity Center) DK50456.

**Competing interests:** None declared.

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