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# **The costs of obesity**

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# The costs of obesity: an update

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## 1 Summary

Policies that aim to reduce the prevalence of obesity have been high on the policy agenda for many years – see, for example, DHSC (2020) and Dimpleby (2021). Understanding the costs associated with obesity is important for informing policy. Bell, Woolley, Toms and Lebre de Freitas (2023) provide what are to date the most detailed estimates of the costs of obesity and overweightness for the UK, updating previous work by Bell and Deyes (2022). The main updates provided in the new work are: (i) add the costs of overweight to the costs of obesity, (ii) include estimates from the losses that arise due to individuals leaving the labour force early, and (iii) updating the estimates to 2023 prices to account for inflation.

This note puts those estimates in context, discusses what costs are missing from their analysis, and which of the costs included are most relevant for policymaking (updating a previous not on Bell and Deyes (2022) estimates).

In summary, these updated estimates of the cost of obesity and overweight are:

- Around 4% of GDP, £98 billion per year
  - the costs of obesity are estimated at around 3% of GDP, £74 billion per year
  - the costs of overweight are estimated at around 1% of GDP, £24 billion per year
  - for obesity the largest part of the costs (72%) are costs to individuals in reduced life expectancy and quality of life, costs to the NHS and lost workplace productivity represent the rest (28%)
  - for overweight this is reversed, costs to the NHS and lost workplace productivity represent the higher share (60%) while costs to the individual make up the remaining 40%.
- The new analysis also considers the impact of the ageing population and estimates of increased prevalence to show that these costs are likely to increase into the future.
- This estimate would be considerably higher if:
  - it included estimates of the costs of child and adolescent obesity, since these are likely very large and long lasting. Obesity is more prevalent in children and adolescents now than it was in the past. Pearson-Stuttard et al. (2023) show that ‘overweight and obesity in adolescents is associated with the development of obesity-related complications and multimorbidity, which increased over 5 years ...’.
  - they included lost efficiency at work, the estimated cost of lost workplace productivity only include the costs not participating in the labour market.
- The estimate would be lower if:
  - a lower value of a quality-adjusted life year (QALY) was used; the analysis uses the official Green Book value (HM Treasury, 2022); however, they show

in their earlier report that if they instead used the value used by the NHS (as a threshold for treatment), which is lower, this would reduce their estimates;

- individual costs were not included; not everyone agrees that the costs to individuals in reduced life expectancy and quality of life are relevant for policy; this would reduce the estimated cost to £35 billion per year.
- the savings associated with BMI-caused deaths through savings to the NHS, and in taxes, benefits and pensions, were included; Tovey (2017) estimates these as £3.6 billion in 2016.

## 2 Estimates of the costs of obesity

Bell, Woolley, Toms and Lebre de Freitas (2023) include in their estimates the following costs of obesity:

- **individual costs**, lower life expectancy and a reduction in the quality of life, informal social care;
- **NHS costs**, the costs of treating illness and medicines that are directly related to obesity, and the costs of antidepressant prescriptions;
- **wider costs**, loss of productivity due to inactivity in the workplace (i.e. being unemployed rather than employed), formal social care.

*Table 1: Estimates of costs in £ billion (2023)*

*Source: Bell, Woolley, Toms and Lebre de Freitas (2023)*

|  | <b>Costs from obesity<br/>(% total)</b> | <b>Costs from overweight<br/>(% total)</b> | <b>Costs from overweight and obesity<br/>(% total)</b> |
|--|---|--|--|
| <b>Individual costs</b> – reduction in longevity and quality of life, informal social care | 54<br>(72%)                             | 9<br>(40%)                                 | 63<br>(64%)  |
| <b>NHS costs</b>   | 11<br>(15%)                             | 8<br>(20%)                                 | 19<br>(20%)  |
| <b>Wider society costs</b> - costs of inactivity in work, formal social care               | 9<br>(13%)                              | 6<br>(26%)                                 | 16<br>(16%)  |
|  |   |  |  |
| Total in £bn   | 74                                      | 24   | 98   |

In each case, the cost of obesity is obtained by comparing the cost for a healthy-weight individual with the cost for an obese or overweight person. All costs are for adults only.

Compared with earlier estimates such as OECD (2019) and Dobbs et al. (2014), the Bell, Woolley, Toms and Lebre de Freitas (2023) and Bell and Deyes (2022) estimates are more up-to-date, include a wider set of costs, and focus on the UK only (meaning that more parameters in their calculations are based on UK evidence or policy documents).

While the estimates produced in OECD (2019) and Dobbs et al. (2014) are not directly comparable, the overall estimates as a share of GDP are similar, with OECD (2019) suggesting a total cost of 3.4% of GDP and Dobbs et al. (2014) 3.0% of GDP.

Bell and Deyes (2022) consider the sensitivity of their estimates to a number of key assumptions, which are also used in Bell, Woolley, Toms and Lebre de Freitas (2023). The most important of these is the monetary valuation of a quality-adjusted life year (QALY) used to calculate the individual costs, because these costs make up a substantial portion of the total costs.

### **3 Social costs are what matter for policy**

Social costs are the costs that matter when making decisions over the level and direction of policy. What are social costs? With reference to food-related outcomes, ‘social costs’ are costs that are not accounted for by the individual when making a decision over what foods to eat and how much to consume. Social costs can include costs that fall on other people (called externalities) or costs that fall on the person themselves in the future, but that they do not know about or do not consider at the time of consumption (called internalities). What distinguishes social costs from private costs is that the person taking the decision does not account for the costs at the time of taking the decision to consume.

Why are social costs relevant for policy?

If a person making a decision over what foods to eat and how much to consume takes account of all of the costs of consumption, then the market (individual buyers and sellers interacting to exchange goods) will yield the most efficient allocation of resources. Government policies cannot increase well-being through changing people’s consumption choices.

However, if the individual making the choice does not have information on, or does not account for, all of the costs, then government can potentially improve well-being (social efficiency) through policies that result in people behaving in ways that reflect the full costs. If the person taking the consumption decision does not account for all of the costs at the time of taking the decision to consume, this means that the standard market mechanisms that lead to people only consuming goods when the benefits are higher than the costs are not at play.

In order to design and implement these policies, it is important for government to know the scale and distribution of social costs.

With regards to food

- private costs are the costs that are anticipated and fully internalised by the person making the consumption decision. These include the market price paid by the consumer, and health risks that the consumer fully pays for and that they knowingly take because they enjoy consuming the food and that pleasure outweighs the health risks for them;
- social costs include those costs that are not paid for by the person making the consumption decision, but are paid for by others. These include a higher cost to the NHS of treating a person with obesity, and increased absences from work that affect

the productivity of other workers in the firm (and that are not reflected in the person's wages);

- social costs also include costs that will be paid for by the person themselves, but are not fully anticipated or not fully internalised when making the consumption decision. These include health risks that do not enter into the consumer's decision making (for example, because they are not aware of the risk, or they were not able to process the information about the risk at the time of making the decision – for example, because they are distracted by advertising or are very young).

In many cases, it is difficult to measure the magnitude of social costs, and to distinguish them from private costs, particularly social costs that fall on the person themselves in the future.

Consumers may face problems of self-control and time-inconsistency and thus might underweight the future health costs of consumption of unhealthy foods relative to how they would like, in the future, to have weighted those costs. There are different points of view on whether policymakers should respect consumers' 'long-run' or 'short-run' preferences (see, for example, discussion in Bernheim and Rangel (2009) and Bernheim and Taubinsky (2018)). A social planner who uses the long-run criterion for welfare analysis might want to help people implement their long-run preferences by reducing consumption of unhealthy foods.

Governments can also improve well-being (social welfare) in situations where the market results in a distribution of resources that is not what society prefers. For example, if the government places a high value on providing children with equality of opportunity, if education is seen as an important part of that, and if poverty is a driver of poor school performance through poor nutrition and rising obesity, then there are also equity reasons for policy intervention, which are separate from social cost concerns.

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