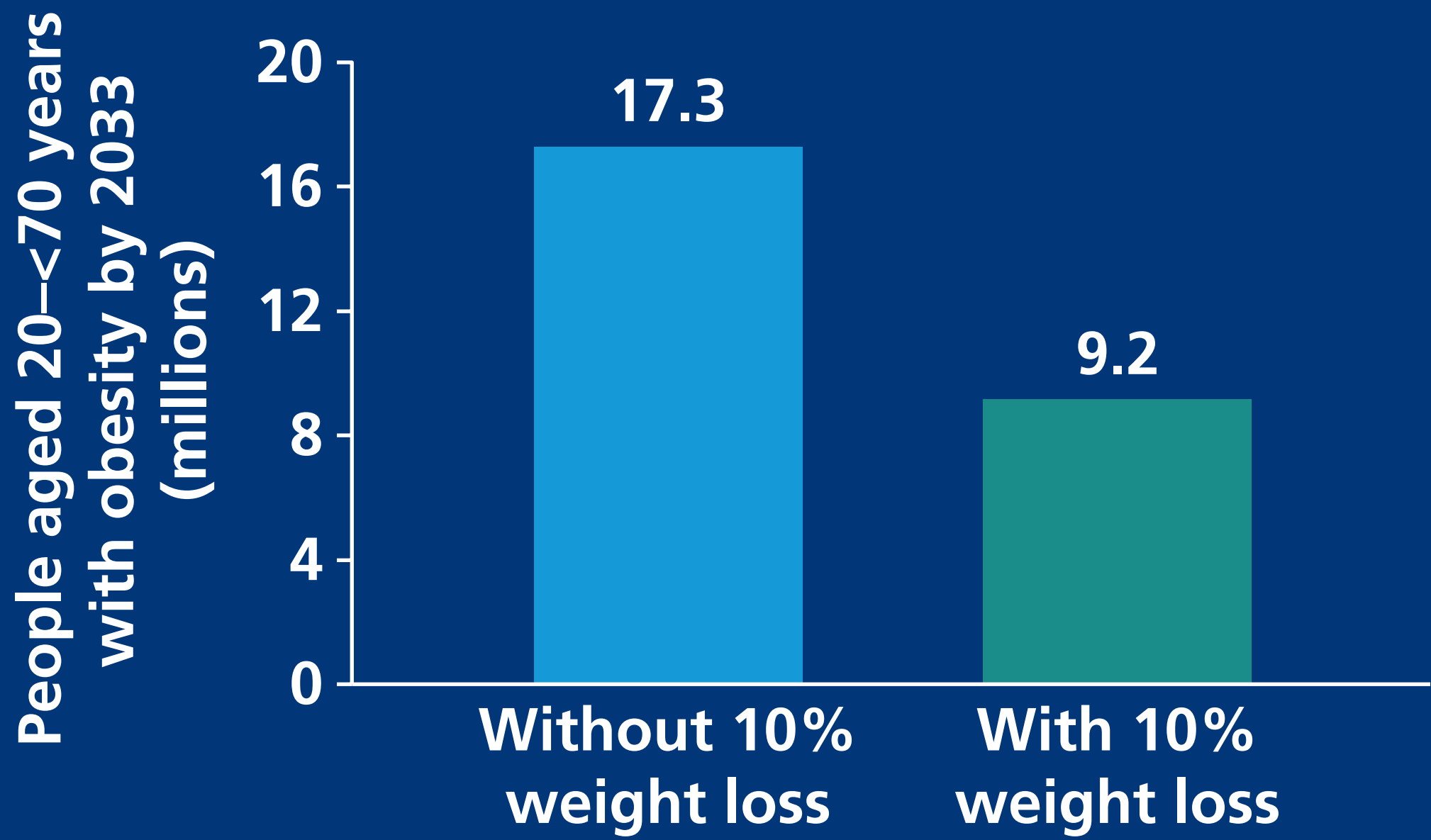


Estimating the projected impact of weight loss on obesity prevalence and healthcare costs in a UK population

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With 10% weight loss, 8.1 million fewer people aged 20–<70 years would have obesity in the UK by 2033 than without 10% weight loss



Objectives

- In common with many other Western European nations, the UK has a high and increasing prevalence of obesity (body mass index [BMI] ≥ 30 kg/m²).¹
 - In England, it is estimated that 26% of adults (≥ 16 years old) had obesity in 2021.²
- People living with obesity typically incur higher healthcare costs than those with healthy weight,³ and these costs increase with higher BMI.⁴
 - Obesity-related complications (ORCs), a wide range of conditions that can affect various organ systems, are a major driver of the increased healthcare costs observed in successively higher BMI groups.⁵
- Weight loss is linked to risk reductions for multiple ORCs;⁶ relatively modest weight loss of up to 10% has been shown to result in improvements in type 2 diabetes, blood pressure and osteoarthritis.⁷
- As part of a broader analysis estimating the prevalence of obesity in the UK over the next 10 years, we quantified the potential benefits of weight loss at a population level.
 - We estimated the impact of weight loss on the prevalence of different obesity classes and on associated healthcare costs in people aged 20–<70 years.

Methods

- The analysis considered adults aged 20–<70 years with obesity class I (BMI 30–<35 kg/m²), class II (35–<40 kg/m²) or class III (≥ 40 kg/m²).
- Changes in the prevalence of obesity between 2020 and 2033 were estimated.
 - Obesity prevalence data were derived from 2019 Health Survey for England obesity estimates and the 2019 Discover electronic health record data set.
 - The estimated prevalence of each obesity class in 2033 was calculated by combining these data with population projections from the Office for National Statistics (2023).
 - It was assumed that obesity prevalence would increase linearly over time, based on estimates from the World Obesity Atlas (2022).
- The effects of 10% weight loss on the projected prevalence of each obesity class from 2020 to 2033 and the associated direct healthcare costs were estimated using the BMI distributions and costs observed in the 2019 Discover data (Table 1).
 - The number of individuals in each group following 10% weight loss was the sum of the number who remained in the group and the number who entered from a higher BMI group.
 - Outcomes were scaled to the UK population by applying them to projections of the future prevalence of obesity, as described above.

Table 1. Effects of 10% weight loss on obesity classes in the 2019 Discover data

	Without assumption of 10% weight loss	With assumption of 10% weight loss			
	Individuals in the group (N)	Individuals who moved to the next BMI group down (n)	Individuals who remained in the group (n)	Total individuals in the group ^a (n)	Reduction in original group size (%)
Obesity class I	73,871	56,535	17,336	42,489	42.5
Obesity class II	29,432	25,153	4279	14,440	50.9
Obesity class III	16,937	10,161	6776	6776	60.0

^aThe sum of individuals who remained in the group and those who moved from the obesity class above. BMI, body mass index.

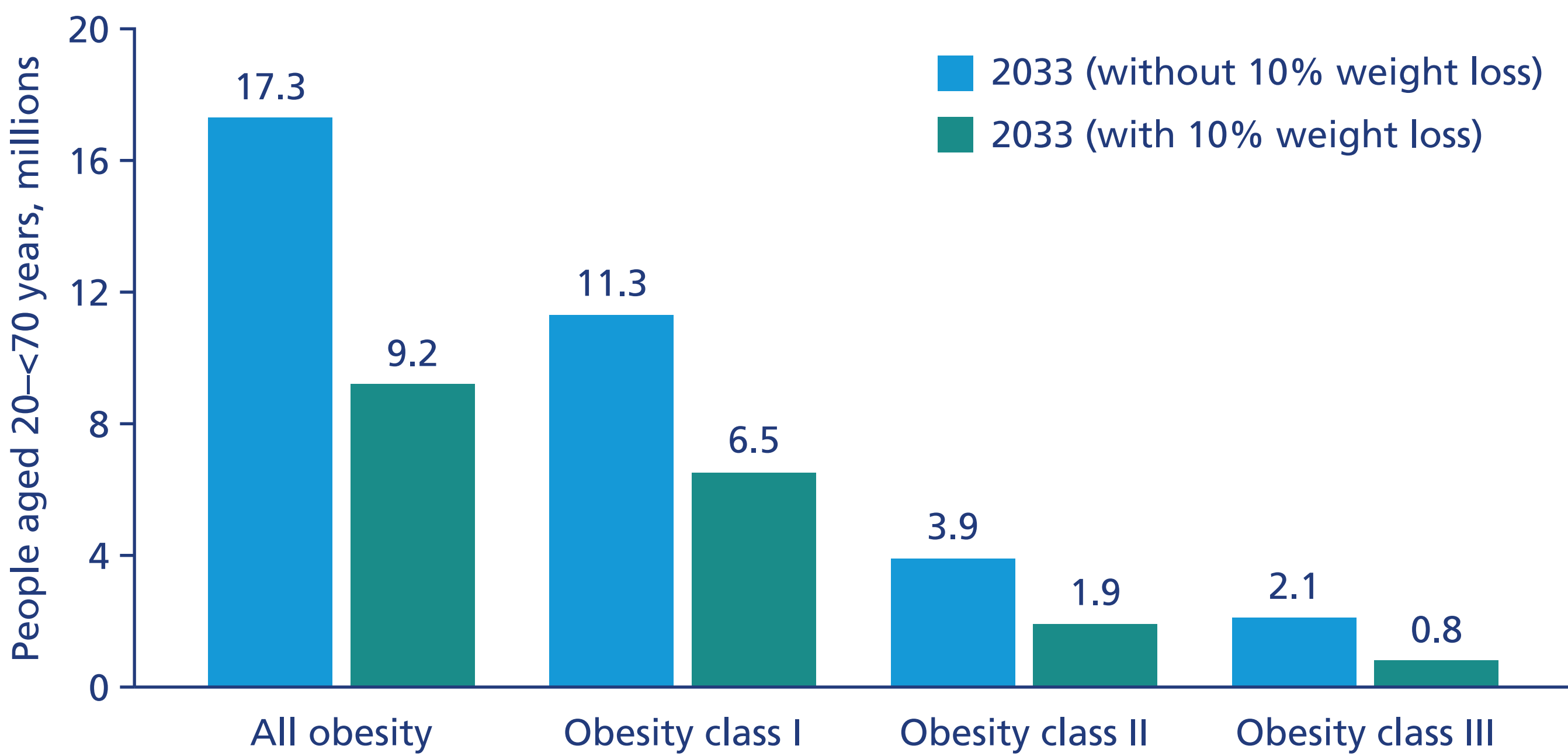
Strengths and limitations

- By estimating the effects of weight loss in separate BMI groups, this study demonstrates the potential impact on both an individual and a UK population level.
- The analysis assumes 10% weight loss for the entire UK population with obesity aged 20–<70 years, without accounting for differences in the weight loss achievable by different demographic and BMI groups. Therefore, it provides a representative rather than a generalizable estimate of the benefits to be gained from weight loss.

Results

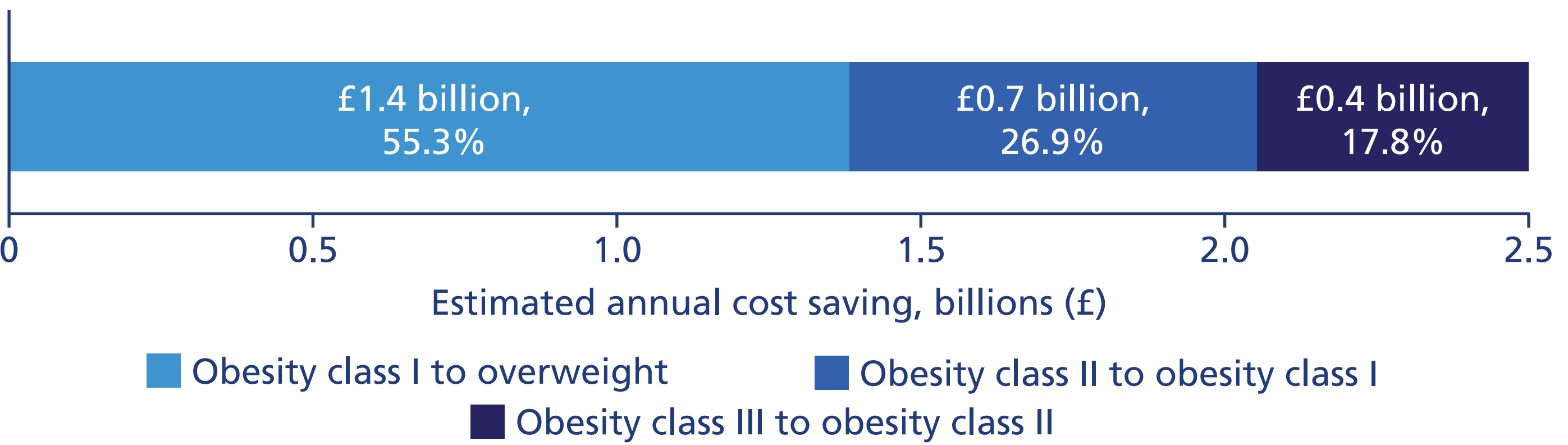
- Without the assumption of 10% weight loss at a population level, it was estimated that 17.3 million people aged 20–<70 years in the UK would have obesity in 2033. With the assumption of 10% weight loss, 9.2 million people would have obesity in 2033, a reduction of 8.1 million (47%).
 - This estimated reduction results from 4.8 million fewer people with obesity class I, 2.0 million fewer with obesity class II and 1.3 million fewer with obesity class III (Figure 1).
 - The magnitude of the estimated reductions increased with obesity class (class I, 42% reduction; class II, 51% reduction; class III, 60% reduction).

Figure 1. Estimated number of people in the UK aged 20–<70 years with obesity in 2033 for scenarios with and without 10% weight loss



- The largest estimated annual direct healthcare per-person cost savings would arise from individuals who moved from obesity class III to obesity class II as a result of 10% weight loss (£350 per person).
 - The equivalent cost savings were £207 for moving from obesity class II to obesity class I and £171 for moving from obesity class I to overweight.
- Overall, 10% weight loss in people aged 20–<70 years in the UK was estimated to result in a £2.5 billion annual cost saving; more than half of this amount was contributed by people moving from obesity class I to overweight (£1.4 billion, 55%; Figure 2).

Figure 2. Estimated annual cost savings in the UK resulting from people aged 20–<70 years moving between BMI groups due to 10% weight loss



BMI, body mass index.

Conclusions

- We predict that 10% weight loss at a UK population level in people aged 20–<70 years over the next 10 years would result in a decrease of approximately 50% in the estimated number of people with obesity by 2033.
- This is predicted to result in substantial healthcare cost savings on a population level; these reductions in healthcare resource use also indicate clinical benefits at an individual level.
- These estimates of the obesity prevalence and cost reductions that could be achieved via weight loss highlight the potential impact of targeted weight management support.

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Disclosures:
KG and SH are employees of Lane Clark & Peacock LLP. Lane Clark & Peacock LLP received consulting fees from Novo Nordisk A/S to perform this analysis. SC is an employee of Novo Nordisk A/S.

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