

# Obesity and health inequalities in Scotland

Summary report



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# Contents

Key messages .....	3
What is this report about? .....	4
What is obesity?.....	4
How is obesity measured? .....	4
Why does obesity matter for health inequalities? .....	5
Obesity policy in Scotland.....	5
How have levels of adult and child obesity in Scotland changed over time?.....	6
Adults .....	6
Children .....	8
How do obesity levels differ according to the level of deprivation where people live? .	9
Adults .....	9
Children .....	10
Conclusion .....	11
Appendix 1: Additional graphs .....	12
References.....	16

## Key messages

- The Scottish adult population has become heavier over time. However, levels have been broadly stable since 2008.
- The largest weight gains have occurred among the heaviest people, which means it is now even harder for obese people to achieve a healthy weight.
- Inequalities in levels of obesity exist between people living in the least and most deprived parts of Scotland. For men, those living in the least deprived areas have the lowest obesity levels while levels are higher, but broadly similar, for men in all other areas. In contrast, obesity is progressively more common for women as deprivation increases.
- Overall levels of childhood obesity risk have been broadly stable over time. However, inequalities have widened in recent years, largely owing to rising obesity among children in the most deprived areas.

## What is this report about?

This report focuses on inequalities in the distribution of obesity in Scotland among adults and children and how these have changed over time. It addresses the following questions:

- How have levels of adult and child obesity in Scotland changed over time?
- How do obesity levels differ according to the level of deprivation where people live?

The figures presented here are based on a more detailed piece of analysis.<sup>1</sup> This report aims to present the results in a more accessible format. It starts with some background information about health inequalities, obesity and why these topics matter. It then presents the results for adults and children.

## What is obesity?

Obesity occurs when the number of calories people consume through food and drink is greater than the number they use up via activity over a prolonged period of time. This results in the accumulation of excess body fat. The causes of obesity are complex, encompassing biology, psychology and behaviour, set within a cultural, environmental and social framework.<sup>2</sup> An increase in the prevalence of obesity is in many ways an inevitable consequence of living in what has been termed an obesogenic society – where relatively cheap, energy-dense foods are marketed relentlessly and where physical activity is cut off from the normal means of getting around and working.<sup>2,3</sup>

## How is obesity measured?

The most common way of assessing obesity patterns in whole populations uses the body mass index (BMI), which is based on people's weight, adjusted for their height. In adults, the World Health Organization considers a BMI of 25 kg/m<sup>2</sup> or more to be overweight, 30 kg/m<sup>2</sup> or more as obese and 40 kg/m<sup>2</sup> or more as severely obese. These thresholds do not apply to children because their height and weight proportions change as they develop. Instead, age- and sex-specific BMI values are compared with data from a reference population. This process identifies children whose BMI indicates they are underweight, overweight or obese, as well as children with BMI values just at the borderline of these groups. For this reason children are described as being 'at risk' of

obesity.<sup>4</sup> This report focuses on patterns in BMI, using measures from the Scottish Health Survey<sup>5</sup> for adults aged 18–64 years and children aged 2–15 years, and from the Child Health Programme<sup>6</sup> assessments carried out with children (4.5–6.5 years) when they start primary school (P1).

## **Why does obesity matter for health inequalities?**

Health inequalities are the unfair and avoidable differences in people's health across social groups and between different population groups.<sup>7</sup> Obesity increases people's risk of a number of health conditions and reduces life expectancy by an average of three years, or 8–10 years for severe obesity.<sup>8</sup> Inequalities in the distribution of obesity will therefore contribute to inequalities in many health outcomes.

People living in the most socioeconomically deprived circumstances experience multiple vulnerabilities and exposures that increase their risk of obesity.<sup>9</sup> Increasing people's awareness of the fact that obesity can be harmful to health, and highlighting the kinds of actions individuals can take to reduce and prevent it can open or worsen an inequalities gap. This is because the people with the most financial resources tend to be the most able to make changes to their lifestyle and immediate environment to help them maintain a healthy weight. Obesity-related inequalities are therefore symptomatic of the fundamental causes of wider health inequalities – an unequal distribution of income, power and wealth.

## **Obesity policy in Scotland**

The current strategy for obesity prevention in Scotland was published in 2010 in the Scottish Government's 'Preventing Overweight and Obesity in Scotland: A Route Map Towards Healthy Weight', usually referred to as the Obesity Route Map (ORM).<sup>10</sup> This sets out a broad package of cross-government measures to make fundamental changes in the current environmental, social and cultural circumstances to prevent obesity, and it remains a ground-breaking strategy internationally. A review of the ORM undertaken in 2015 concluded that progress on implementation had been slow and required better monitoring.<sup>11</sup> The Scottish Government is currently developing a new obesity strategy and this is due to be published in 2018. Guidelines for treatment of obesity in Scotland

are set out in the 'Management of Obesity: SIGN guidelines 115'<sup>12</sup> and 'Weight Management Programmes for Adults: Evidence Note 29'.<sup>13</sup>

## How have levels of adult and child obesity in Scotland changed over time?

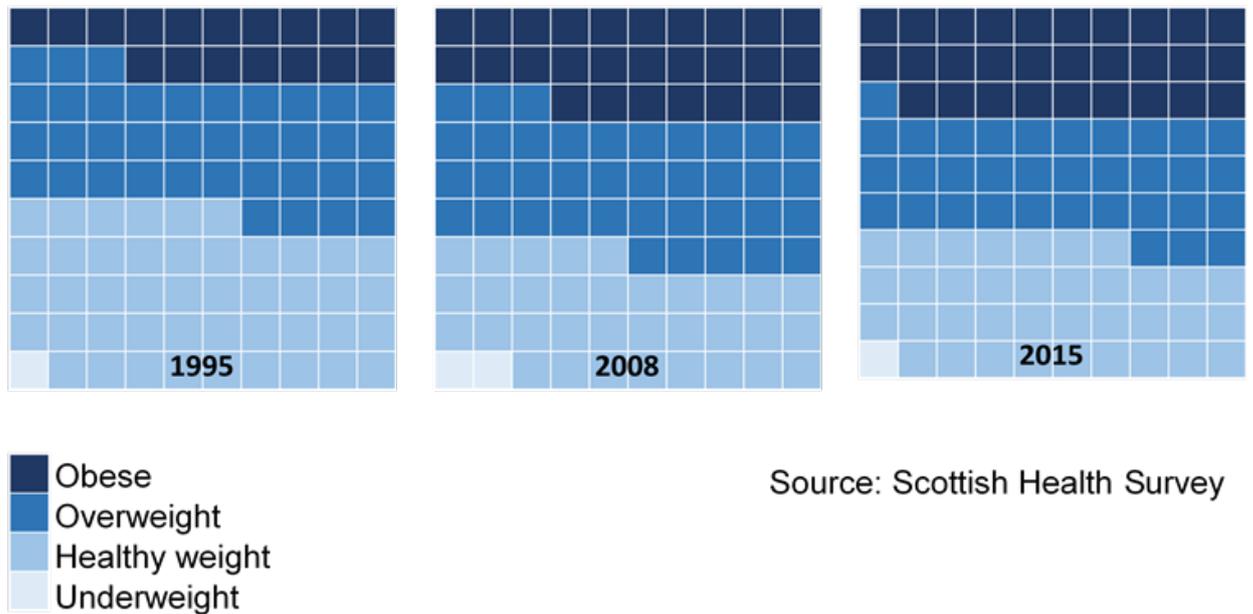
### Adults

The Scottish Health Survey has measured BMI in adults aged 18–64 since 1995, and in adults aged 65 and over since 2003. This report focuses on the longer, 20-year time period from 1995 onwards, but the results including older adults in more recent years show very similar patterns (see **Figure 6** in **Appendix 1**).

The prevalence of obesity in adults aged 18–64 increased from 17% in 1995 to 27% in 2008, and has remained at a similar level since then (**Figure 1**). The most recent figures for 2015 show that 28% of men and 29% of women aged 18–64 were obese. Overall levels of overweight – including obesity – have increased from 40% in men and 31% in women in 1995, to 66% in men and 60% in women in 2015.

**Figure 1:** Changes in levels of obesity in adults aged 18–64 from 1995 to 2015.

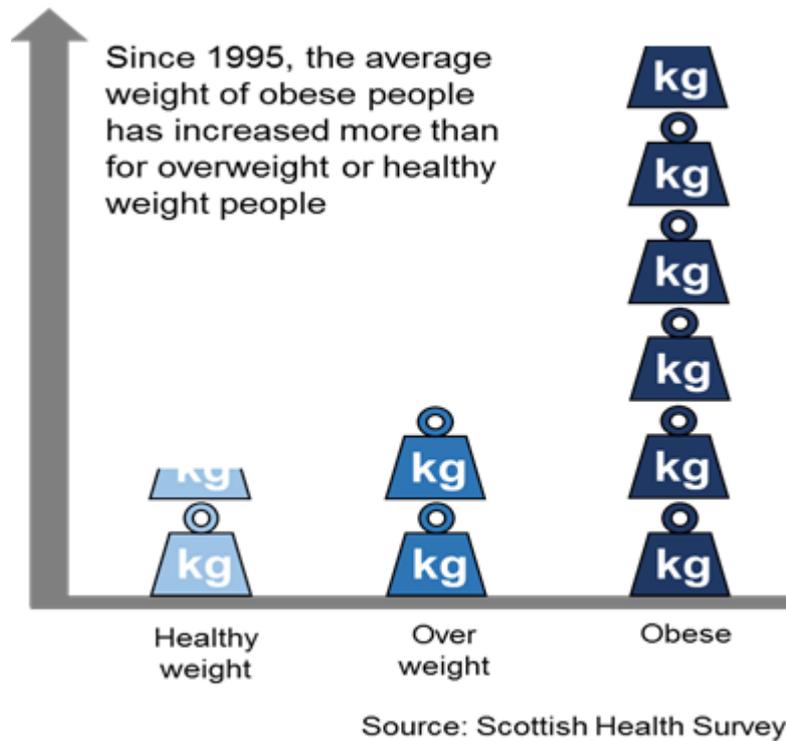
**Obesity has increased over time in Scotland in adults aged 18-64**  
...but figures haven't changed much since around 2008



Note: Starting from the top down: the darkest blue boxes represent obesity; the dark blue overweight; the lighter blue a healthy weight; and the lightest blue underweight.

While most groups are now heavier than was the case in 1995, this is particularly pronounced for the heaviest group. The average healthy weight adult in 2015 weighed just over 1 kg (1.3 kg) more than the average healthy weight adult in 1995. For obese adults the increase was much greater (5.7kg). As a consequence, to return to a healthy BMI (under 25 kg/m<sup>2</sup>) the average obese person in 2015 needed to lose more weight than the average obese person would have done in 1995 (**Figure 2**).

**Figure 2:** Changes in the average weights of healthy, overweight and obese people since 1998.



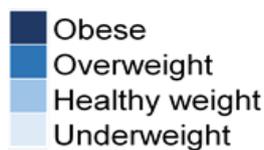
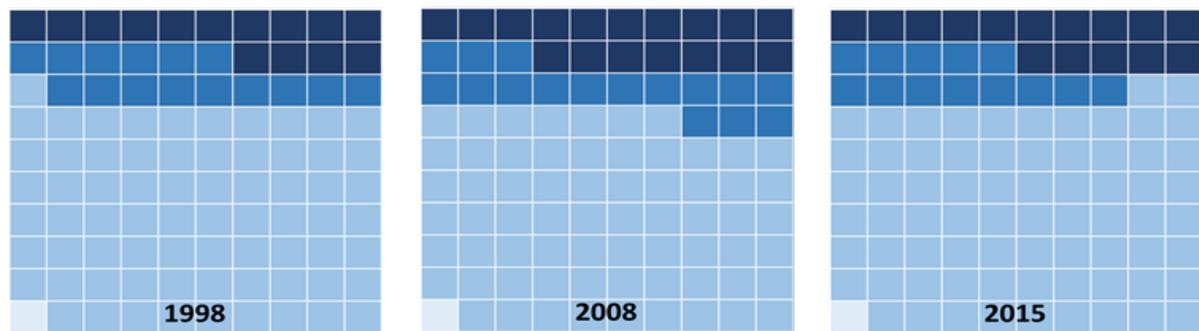
## Children

The latest figures for 2015 show that just over one in four children aged 2–15 years in Scotland were at risk of being overweight or obese. Levels of obesity in children aged 2–15 have remained at around 14–17% since it was first measured in 1998 (**Figure 3** and **Figure 6, Appendix 1**).

All children starting primary school (P1) are invited to have their height and weight measured (92% participate in this). The most recent results, from 2014/15,<sup>6</sup> show that 10% of P1 children were at risk of obesity and a further 12% at risk of overweight.

**Figure 3:** Changes in levels of obesity in children from 1995 to 2015.

**Children’s weight (aged 2-15) has been similar since 1998**



Source: Scottish Health Survey

Note: Starting from the top down: the darkest blue boxes represent obesity; the dark blue overweight; the lighter blue a healthy weight; and the lightest blue underweight.

## How do obesity levels differ according to the level of deprivation where people live?

The likelihood of obesity is higher for people living in deprived areas [measured using the Scottish Index of Multiple Deprivation<sup>14</sup> (SIMD)]. This is particularly the case for women and children. Levels of overweight, in contrast, do not vary notably by area deprivation.

### Adults

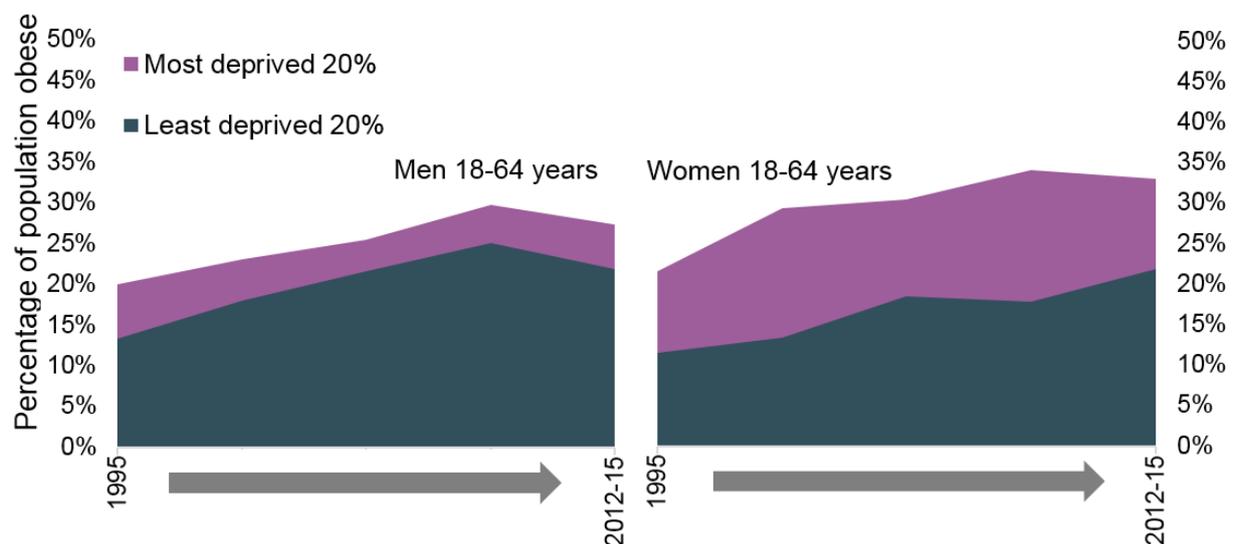
The figures in the chart below (**Figure 4**) show that, in all years, men and women in the most deprived areas are more likely to be obese than men and women in the least deprived areas (for simplicity, only the figures for the most and least deprived groups are shown). Men and women living in the least deprived areas now have very similar levels of obesity. In contrast, levels of obesity are higher for women in deprived areas than they are for men in deprived areas. The gap between the most and least deprived areas is also much bigger for women than it is for men.

The pattern for the other deprivation groups is more complicated (these are not shown in **Figure 4** but can be seen in **Appendix 1, Figures 7 and 8**). For men, they varied across the years with no clear pattern, though in the most recent years (2012–15), men in the least deprived areas have the lowest levels of obesity while men in all other areas appear to have higher, but fairly similar, levels. The pattern is clearer for women: in all years, obesity increases as area deprivation increases.

**Figure 4:** Obesity and deprivation for men and women.

**The gap between the level of obesity in the 20% most and least deprived areas in Scotland is bigger for women than men...**

**...but the size of the gap has not changed notably since 1995**



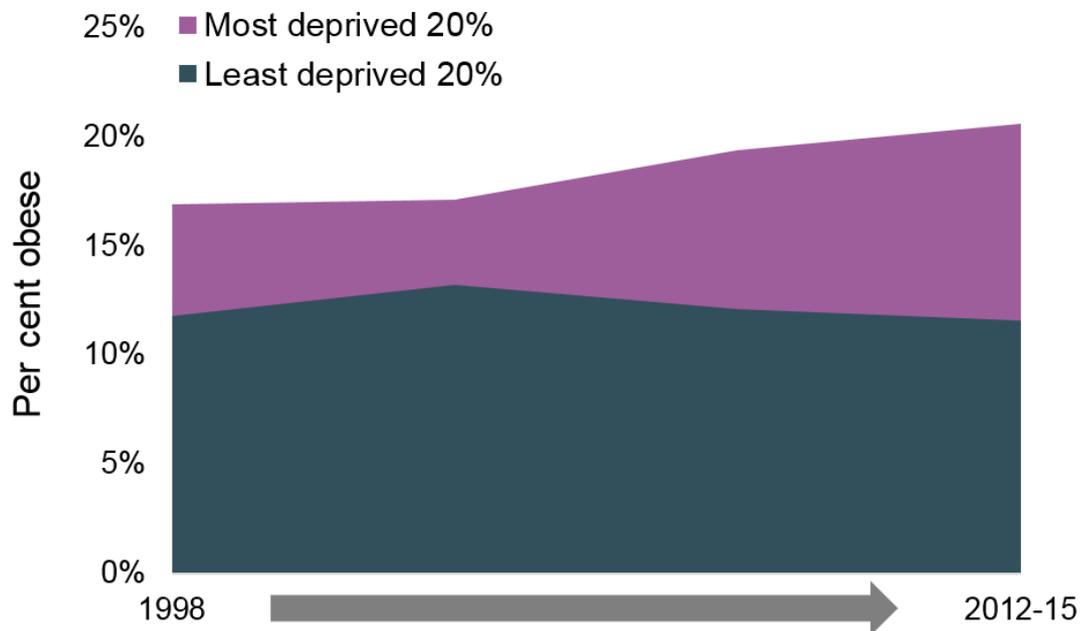
Note: the results for 2008–11 and 2012–15 are based on multiple survey years combined (this increases the precision of the estimates in these years). The intervals between survey years are not even. Source: Scottish Health Survey.

## Children

The chart below (**Figure 5**) illustrates how the gap between obesity risk levels for children in the most and least deprived areas has widened since it was first measured in 1998. In contrast, the gaps shown above for men and women have not changed notably over time. This increased gap for children is due to obesity risk remaining largely stable for children living in the least deprived areas while it has increased for children in the most deprived areas (see **Appendix 1, Figure 9**).

**Figure 5:** Obesity and deprivation for children.

**Obesity risk has increased for children aged 2–15 in the most deprived areas since 1998**



Note: the results for 2012–15 are based on multiple survey years combined (this increases the precision of the estimates in these years). The intervals between survey years are not even.

Source: Scottish Health Survey

BMI data is collected in schools when children start P1. In 2015/16 obesity risk was 7% in children in the least deprived areas, and nearly double that (13%) in the most deprived areas. This shows how early on in a child’s life inequalities in obesity appear.

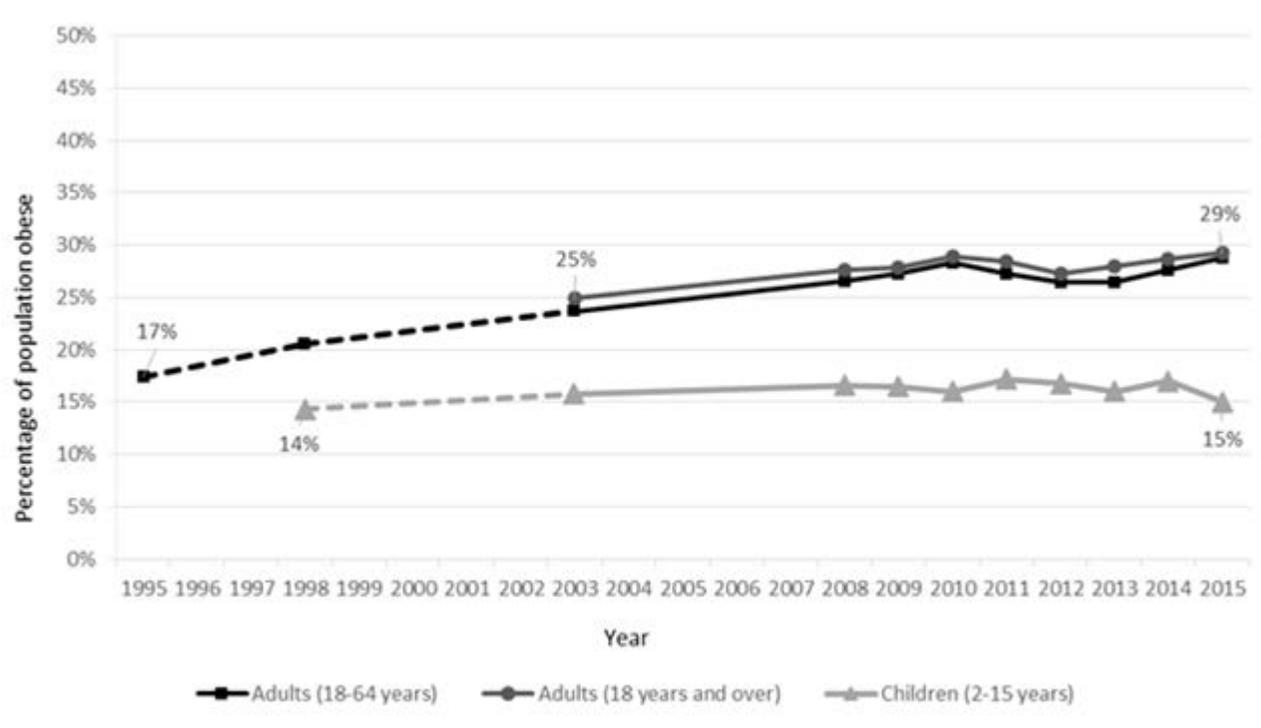
## Conclusion

Obesity prevalence in Scotland has been broadly stable in recent years for adults and children. However, absolute levels of obesity are high by international standards and, for adults at least, are higher than was the case in the recent past. The widening inequality in child obesity prevalence, and the different ways that deprivation shapes men and women’s obesity levels, are important patterns that need to be taken into account when designing policies to tackle obesity and help the population maintain a healthy weight. Health inequalities impact assessments of policy options can help to ensure that interventions are delivered in ways that minimise the risk of widening inequalities further.

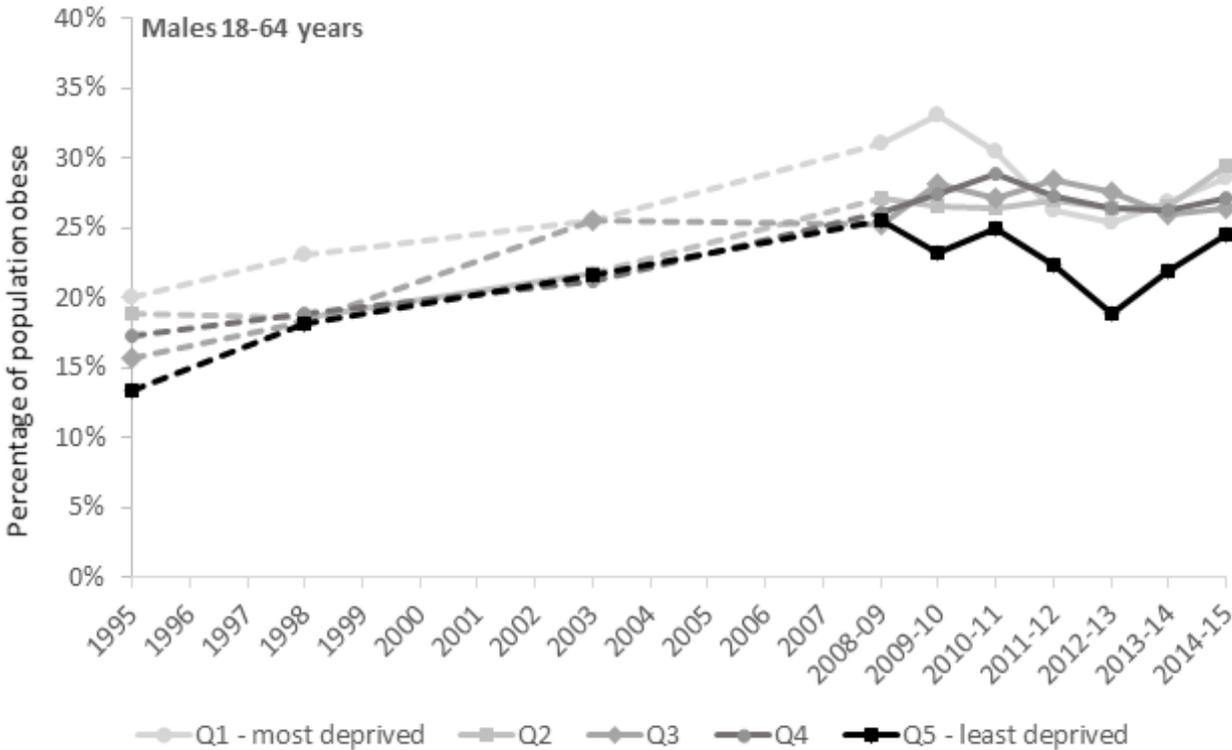
## Appendix 1: Additional graphs

Note: The dashed lines in Figures 6–9 illustrate gaps in the data between 1995 and 2008 where no survey took place. The continuous Scottish Health Survey began in 2008. Prior to this surveys were undertaken in 1995, 1998 and 2003.

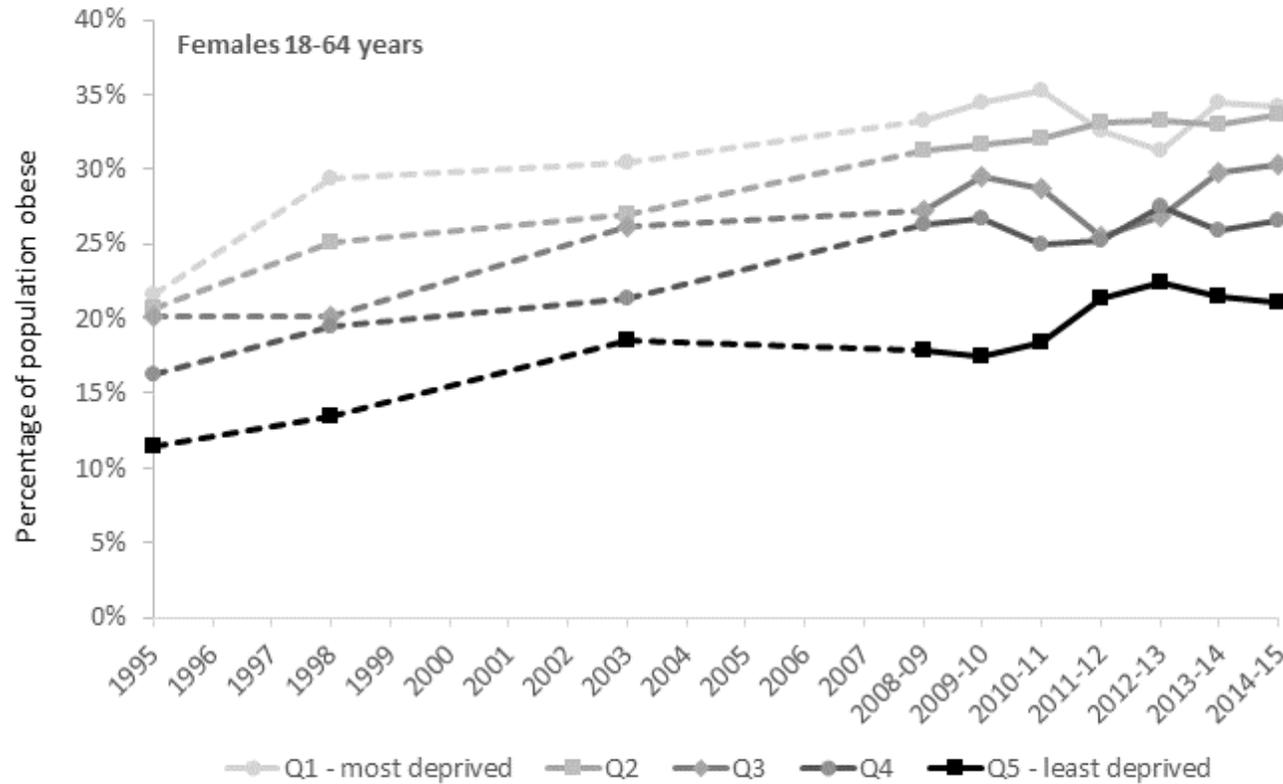
**Figure 6:** Trends in the prevalence of adult and child obesity in Scotland, 1995–2015 (Scottish Health Survey).



**Figure 7:** Trends in prevalence of adult obesity in Scotland by SIMD quintile, 1995–2015 (men aged 16–64) (Scottish Health Survey).

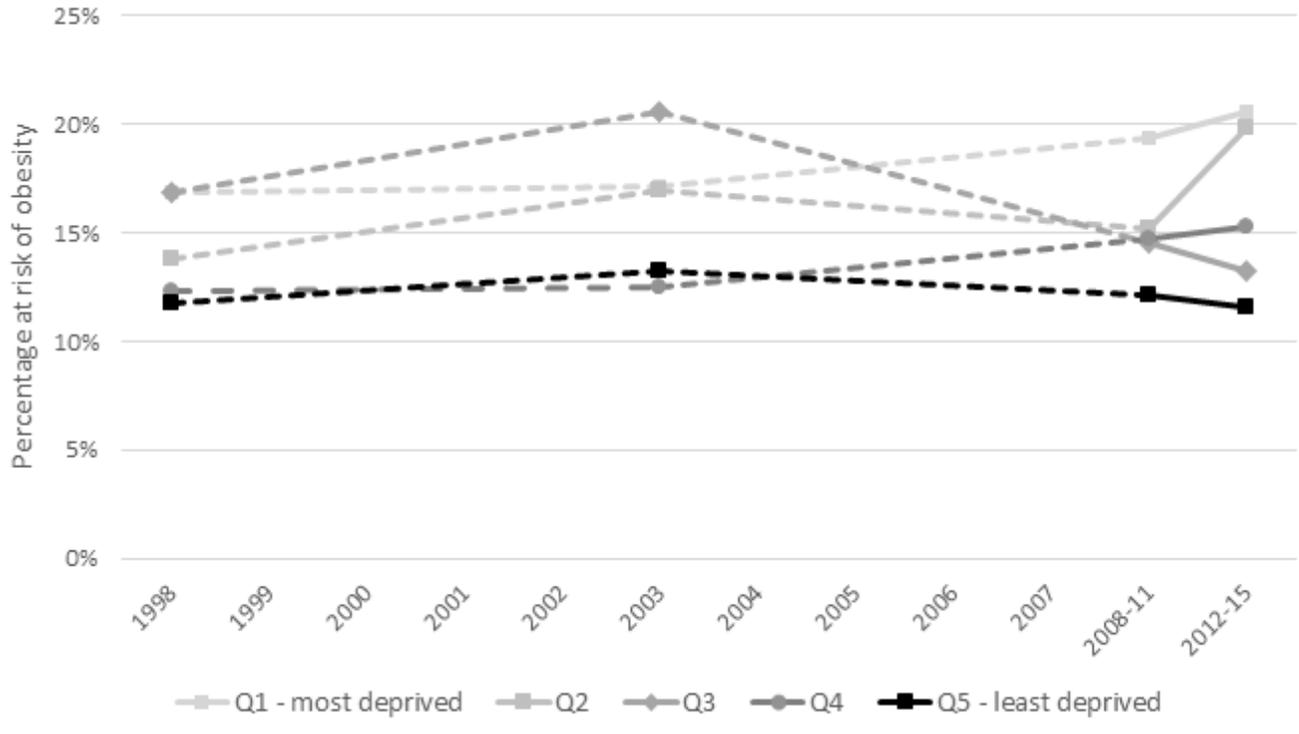


**Figure 8:** Trends in prevalence of adult obesity in Scotland by Scottish Index of Multiple Deprivation quintile, 1995–2015 (women aged 16-64) (Scottish Health Survey).



Note: the estimates for 2008 onwards are based on two-year moving averages (e.g. 2008 = average of 2008, 2009; 2009 = average of 2009, 2010).

**Figure 9:** Trends in prevalence of child obesity risk in Scotland by Scottish Index of Multiple Deprivation quintile, 1998-2015 (children aged 2–15) (data from Scottish Health Survey).



Note: the estimates for 2008–11 and 2012–15 are based on four-year pooled data.

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