



## Adult obesity and socioeconomic status data factsheet

### Key points

The relationship between obesity prevalence and socioeconomic status can be examined in different ways. This factsheet examines several approaches to give a picture of the current situation and of changes over time.

- Overall, for women, obesity prevalence increases with increasing levels of deprivation, regardless of the measure used. For men, only occupation-based and qualification-based measures show differences in obesity rates by levels of deprivation
- Obesity in women falls steadily with rising levels of household income, and there is a significant difference in prevalence between the highest and lowest income groups. The differences are smaller for men and the trend is less clear-cut (Figure 1)
- The prevalence of obesity for women in unskilled occupations is almost twice that of those in professional occupations. The overall pattern is similar for men: those in professional occupations have lower obesity prevalence than any other group (Figure 2)
- Obesity prevalence is higher among women in lower National Statistics Socio-economic Status (NS-SEC) groups, with smaller differences between groups for men (Figure 3)
- Obesity prevalence is higher in both men and women who have fewer qualifications (Figure 4)

Women living in more deprived areas have higher levels of obesity than those in less deprived areas. There is no clear pattern for men (Figure 6).

- Among men and women, the prevalence of obesity increased across all social classes between 1994 and 2009 (Figures 7 and 8)

# Introduction

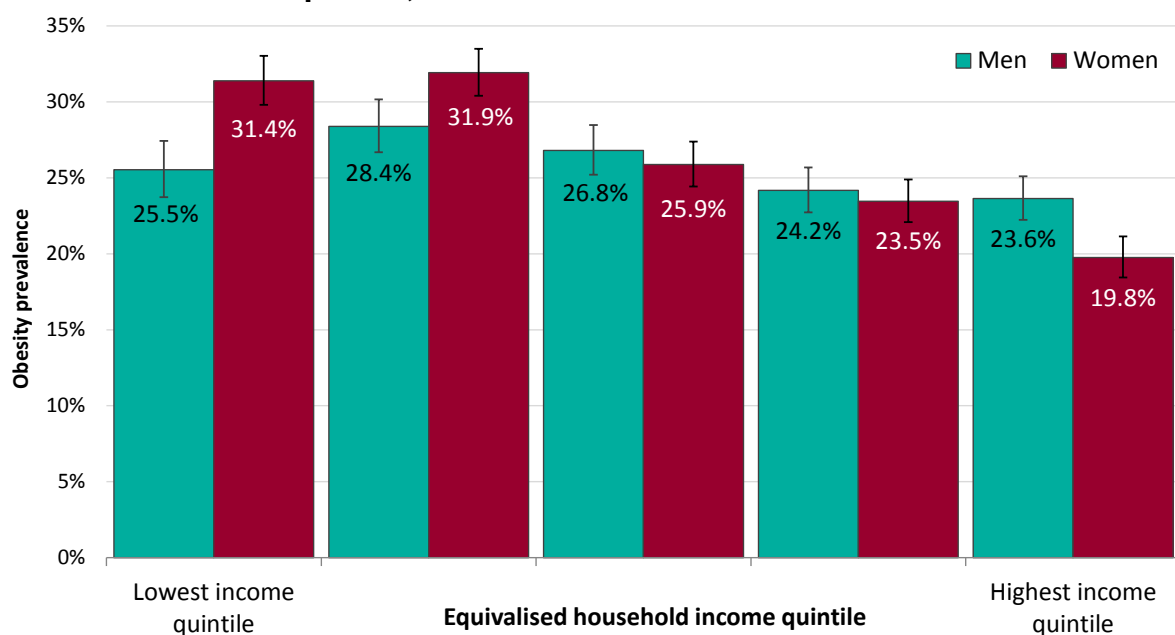
The term 'socioeconomic status' is generally used to identify a person's status relative to others based on characteristics such as income, qualifications, type of occupation, and where they live. As a result, a number of measures have been developed to classify people into groups based on different characteristics. These measures are based on individual, household or regional characteristics and are used to assess inequalities between social groups. This factsheet summarises the data on the relationship between obesity prevalence in adults and socioeconomic status in the English population.

Obesity prevalence in England is known to be associated with many indicators of socioeconomic status, with higher levels of obesity found among more deprived groups.<sup>1</sup> The association is stronger for women than for men,<sup>2</sup> a pattern that has been observed in many other developed countries.<sup>3</sup>

## Obesity and household income

Household income is a good indication of socioeconomic status. In the Health Survey for England (HSE), income is adjusted to take into account the number of people living in the household ('equivalised household income'). Splitting the population into five equal-sized groups (quintiles) based on income level allows for comparison across the range of incomes. Using HSE data, Figure 1 shows the relationship between obesity prevalence and income for men and women. For women, there is an almost linear relationship, with obesity levels decreasing as household income rises. Women in the highest socioeconomic group have significantly lower obesity prevalence than the other income groups. For men, the pattern is less clear. There is little difference between obesity prevalence across the income groups.

**Figure 1: Prevalence of obesity in adults (aged 16 and over) by equivalised household income quintile, 2008–2012**



Source: Health Survey for England

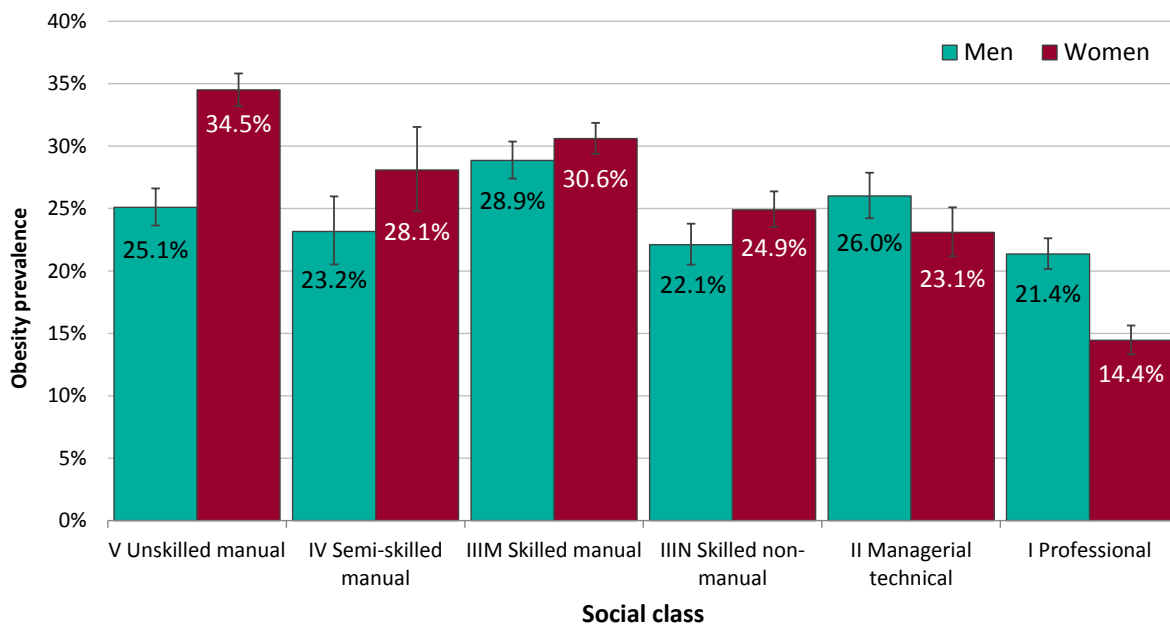
## Obesity and social class

The HSE provides a definition of social class according to occupational groups based on skill levels, ranging from 'professional' to 'unskilled manual'. Figure 2 shows that obesity prevalence by social class follows a different pattern for men than for women.

In women, obesity prevalence falls from social class V to I. Although the pattern is not smooth across all the occupational groups, women in unskilled manual occupations have over twice the prevalence of obesity (34.5%) of professional women (14.4%). Men in professional occupations have lower obesity prevalence than those in other occupational groups, but the differences are smaller than for women.

When the categories are combined into manual (IIIM, IV, V) and non-manual (I, II, IIIN) occupational groups, obesity prevalence is significantly higher in the manual group for both men and women (this analysis is not illustrated here).

**Figure 2: Prevalence of obesity in adults (aged 16 and over) by social class, 2006–2009**



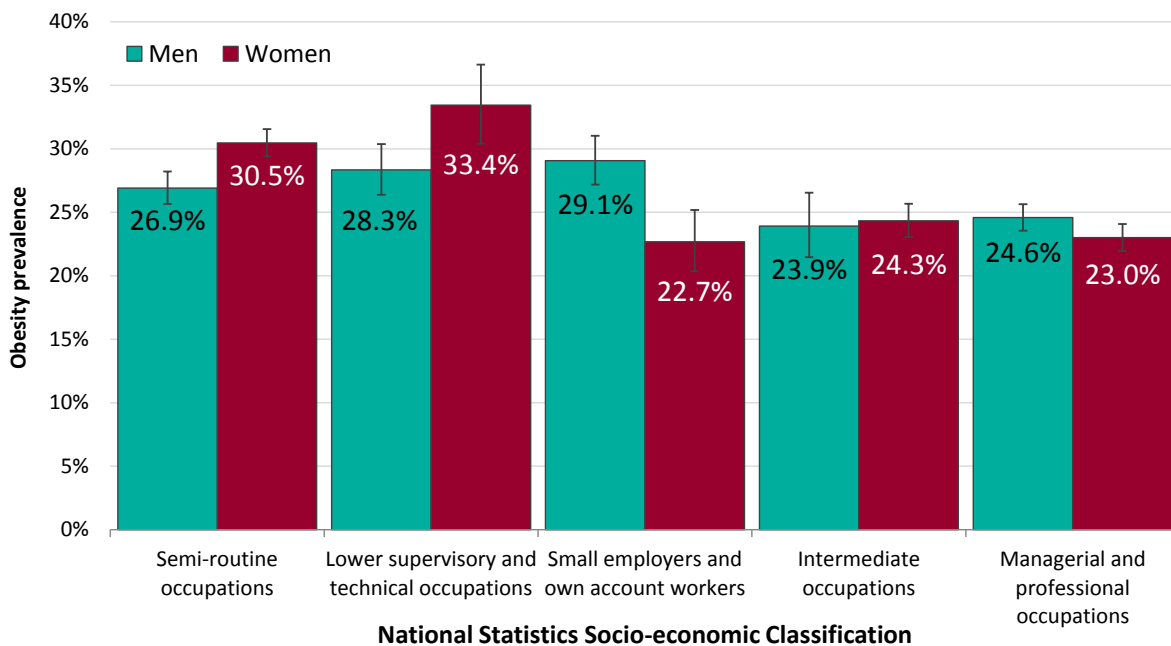
Source: Health Survey for England

# Obesity and socioeconomic status

The National Statistics Socio-economic Classification (NS-SEC) classifies individuals based on characteristics such as career prospects, autonomy at work, mode of payment and period of notice.

Figure 3 shows obesity prevalence for men and women across different NS-SEC groups. Women in the three highest occupational groups have a significantly lower prevalence of obesity than women in other groups. For men, the pattern is less clear and the prevalence of obesity is similar across all NS-SEC groups.

**Figure 3: Prevalence of obesity among adults (aged 16 and over) by National Statistics Socio-economic Classification, 2008–2012**

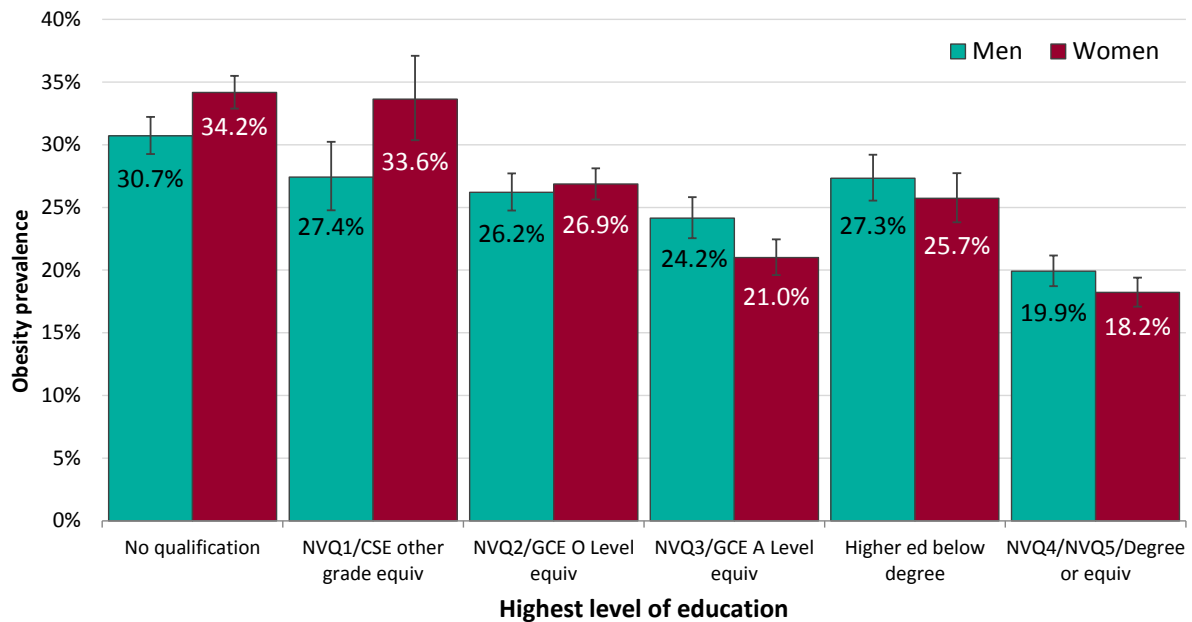


Source: Health Survey for England

## Obesity and educational attainment

Figure 4 shows that obesity prevalence varies with levels of educational attainment. It groups men and women according to their highest qualification, showing a general trend of higher obesity prevalence with lower levels of education. Both men and women with degree-level qualifications have significantly lower rates of obesity than all others. Adults with no qualifications have the highest rates of obesity.

**Figure 4: Prevalence of obesity in adults (aged 16 and over) by highest level of education, 2008–2012**



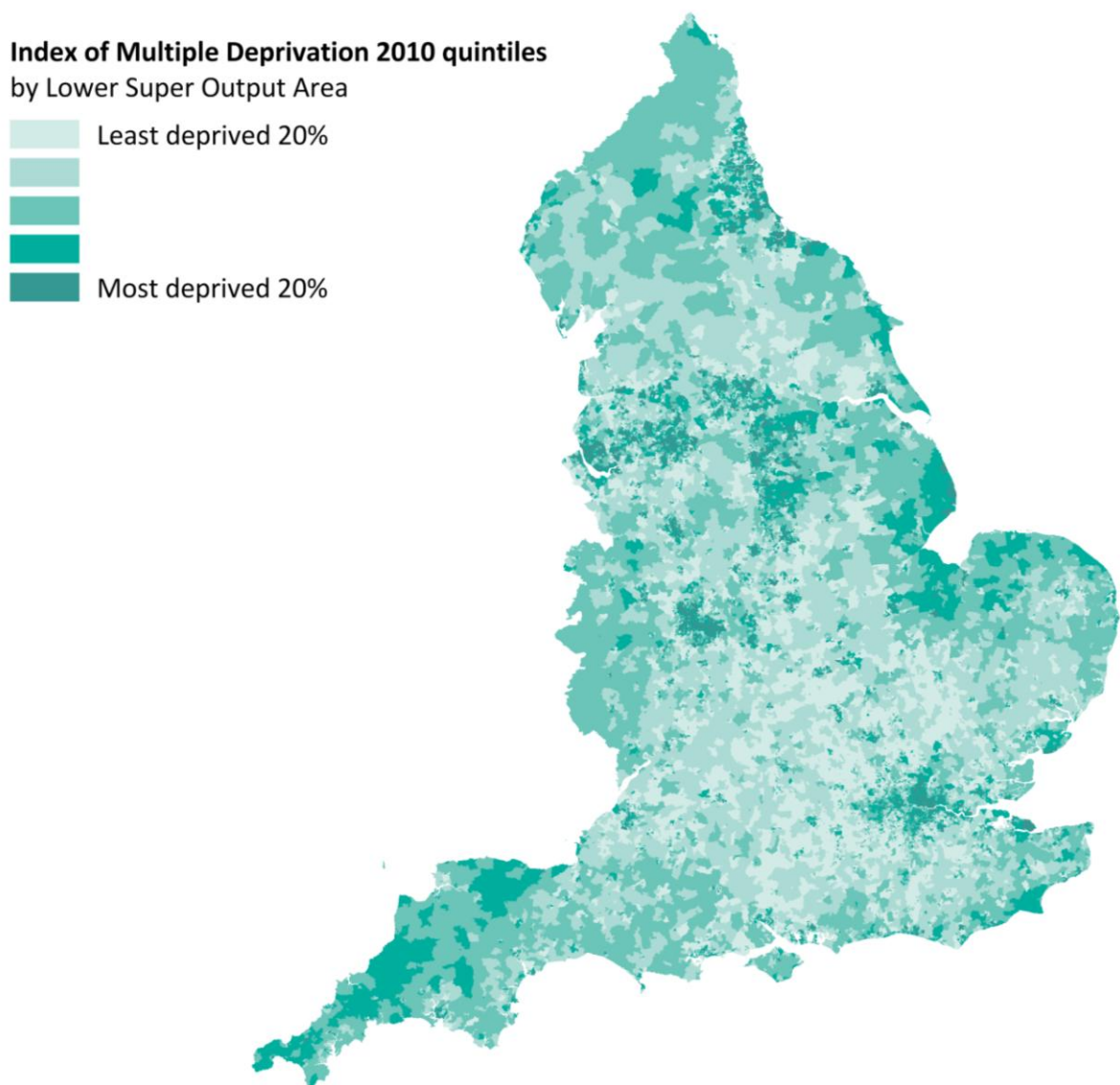
Source: Health Survey for England

## Obesity and deprivation

The Index of Multiple Deprivation (IMD) 2010 is a composite measure of deprivation based on data from seven domains (income; employment; health and disability; education, skills and training; housing and services; crime; and living environment). In contrast to other measures used in this factsheet, the IMD is based on the characteristics of the geographical area of residence rather than characteristics of the individual.

In the HSE, respondents are divided into five equal-sized bands (quintiles) based on IMD score of their area of residence, ranging from the least to the most deprived fifth of the population. The map in Figure 5 shows how areas of deprivation are distributed across England. It is based on a geographic unit called a Lower Super Output Area (LSOA) with an average population of around 1,500. Many of the most deprived areas (darker shades) are in the northern and western regions of England and in London, but every region has some areas in the most deprived quintile.

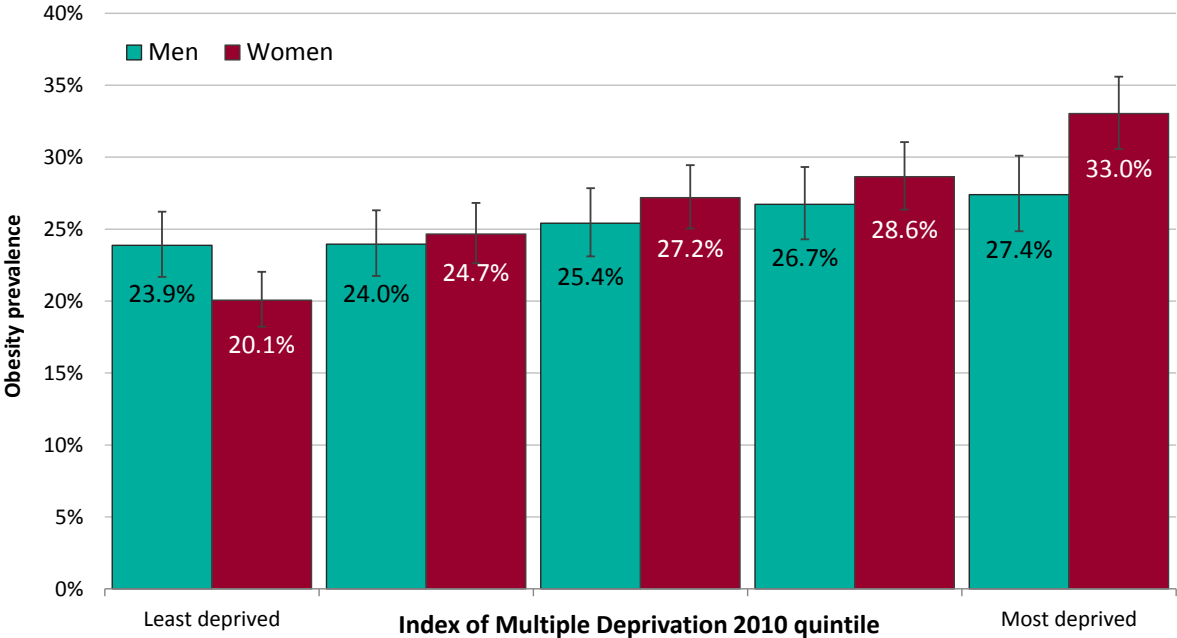
**Figure 5: Distribution of deprivation in England: IMD 2010**



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Figure 6 shows the prevalence of obesity by deprivation quintile. Women living in more deprived areas are more likely to be obese: obesity prevalence rises from 20.1% in the least deprived quintile to 33.0% in the most deprived quintile. Once again, there is no clear pattern for men.

**Figure 6: Prevalence of obesity in adults (aged 16 and over) by deprivation quintile based on IMD 2010, 2011–2012**



Source: Health Survey for England

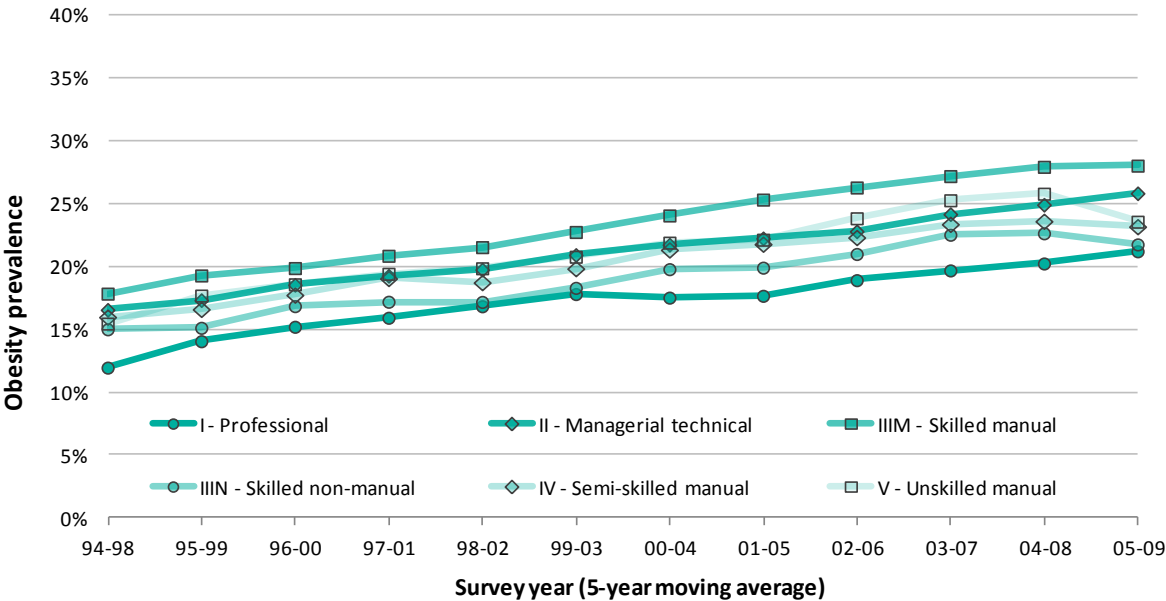
# Trends

Social class data has been collected annually so trends can be observed over several years. Figures 7 and 8 show trend data for men and women by social class from 1994 to 2009 using five-year moving averages, which even out year-on-year variation. Social class of participant was not available in the 2010 or 2011 HSE data. It is available in the 2012 dataset but it will not be possible to produce a five-year average to include the latest data.

Among men, obesity prevalence increased across all social classes over this period. Men in the professional social class consistently have the lowest prevalence of obesity. Men in the skilled manual social class consistently have the highest prevalence of obesity. Men in the skilled non-manual and semi-skilled manual groups showed the smallest increase in obesity prevalence (around seven percentage points), whereas the skilled manual group had the largest increase (ten percentage points).

Among women, the overall change in prevalence within each social class has been less pronounced. Women in the professional social class consistently have the lowest prevalence of obesity. Women in the unskilled manual social class consistently have the highest prevalence of obesity. Women in unskilled manual and skilled manual occupations showed an increase of approximately eight percentage points in obesity prevalence. Among other social classes, obesity prevalence increased between six and seven percentage points. The apparent dip in prevalence in professional women between 2001 and 2006 is most likely due to the small sample size in this group during that period.

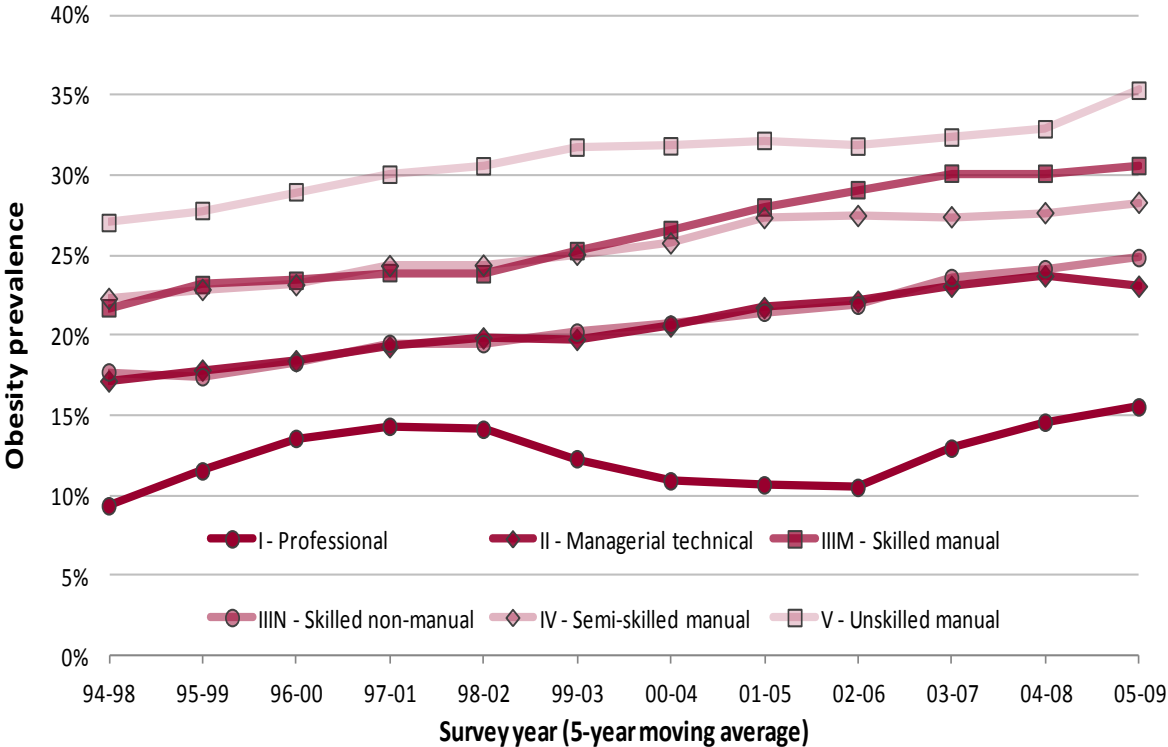
**Figure 7: Prevalence of obesity in men (aged 16 and over) by social class, five-year moving average, 1994–2009**



Source: Health Survey for England



**Figure 8: Prevalence of obesity in women (aged 16 and over) by social class, five-year moving average, 1994–2009**



Source: Health Survey for England

## What can different deprivation measures tell us?

It is clear that there are significant inequalities in obesity prevalence within the population. Among women, obesity prevalence increases with decreasing socioeconomic status. However, the pattern is less clear for men, and the different indicators used in this factsheet give a varying picture.

Male manual workers have higher rates of obesity than non-manual groups, and obesity prevalence rises with decreasing educational level among both men and women. However, obesity varies much less between men in different income groups, or living in areas of different levels of deprivation, and a more detailed breakdown by occupational group also reveals little.

The implications of these findings are that for women, all indicators of socioeconomic status are likely to provide a good indication of obesity prevalence within the population. Up-to-date, individual-level information (for example income or educational achievement) offers the most accurate way of highlighting those at high risk of obesity, but if only demographic information such as postcode is available then area-level indicators (for example IMD) provide a good indication of risk of obesity for women.

Among men, it may be that there is less inequality in the prevalence of obesity. More care is certainly needed in choosing an indicator that will identify at risk groups. Data on manual and non-manual occupational groups, or men with different levels of educational attainment, is likely to offer the best way to track changes over time or to highlight men at high risk of obesity. Area-based deprivation indicators, such as the IMD, will not reliably predict which men are at highest risk of obesity.

## References

1. The Marmot Review: 'Fair Society, Healthy Lives: Strategic Review of Health Inequalities in England post-2010'. February 2010.
2. Health and Social Care Information Centre: Statistics on Obesity, Physical Activity and Diet: England, 2014. <http://www.hscic.gov.uk/catalogue/PUB13648/Obes-phys-acti-diet-eng-2014-rep.pdf>
3. McLaren L. Socioeconomic Status and Obesity. *Epidemiological Reviews* 201;**29**; 29-48.

## Data sources

### Health Survey for England

<http://www.hscic.gov.uk/catalogue/PUB13218>

Most data presented in this paper is from the HSE. The HSE is a cross-sectional survey that samples a representative proportion of the population.

*Timing of data collection:* The survey is conducted annually. Due to the sample size of the HSE, data for 2008 through to 2012 has been combined for most of the analyses in this report to provide more robust estimates by socioeconomic subgroup.

*Date of next release:* The report on the HSE 2013 is scheduled to be published online in December 2014. The data will be available from the UK Data Archive in the spring following publication of the report.

*Health Survey for England, 1993-2012. Joint Health Surveys Unit (Nat Cen Social Research & UCL) 2014. The Health and Social Care Information Centre: Leeds. Copyright © 2014, Re-used with the permission of the Health and Social Care Information Centre. All rights reserved.*

### Index of Multiple Deprivation 2010

<https://www.gov.uk/government/publications/english-indices-of-deprivation-2010>

# Definitions

## Body mass index and weight classification in adults

BMI is a measure of weight status. BMI is a person's weight in kilograms divided by the square of their height in metres. The following cut-offs are used to classify adults:

BMI range (kg/m <sup>2</sup> )	Classification
Less than 18.5	Underweight
18.5 to less than 25	Healthy weight
25 to less than 30	Overweight
30 to less than 40	Obese I and II
Greater than or equal to 40	Obese III

In this factsheet the definition of 'obese' includes obese III (BMI  $\geq 40$ kg/m<sup>2</sup>). The term 'severe obesity' refers to obese class III (BMI  $\geq 40$ kg/m<sup>2</sup>), previously often referred to as morbid obesity.

## Confidence intervals on the charts

Error bars (I) on the charts are 95% confidence intervals. These indicate the level of uncertainty about each value on the chart. Wider intervals mean more uncertainty.

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