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National Obesity Observatory

NOO data factsheet

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Child Obesity and Socioeconomic Status

Key points

- There are significant inequalities in obesity prevalence for children, both girls and boys, and across different age groups.
- The pattern of socioeconomic inequalities is consistent across a variety of different measures of deprivation using two different data sources: the National Child Measurement Programme (NCMP) and the Health Survey for England (HSE).
- There is an almost linear relationship between obesity prevalence in children and the Index of Multiple Deprivation 2010 (IMD) score for the area they live in. Child obesity prevalence in the most deprived tenth of local areas is almost double that in the least deprived tenth (Figure 1).
- The Income Deprivation Affecting Children Index (IDACI) shows a similar increase in child obesity as income deprivation increases. Child obesity prevalence in areas with the highest level of income deprivation is almost double that of areas with the lowest level (Figure 3).
- Obesity prevalence is also related to eligibility for free school meals (FSM). Children living in areas with higher rates of eligibility for FSM have significantly higher rates of obesity than those living in areas with low eligibility rates (Figure 4).
- Household income data drawn from the Health Survey for England (HSE) give a similar picture: child obesity prevalence rises as household income falls, and is significantly higher in the lowest income group than in the highest (Figure 5).
- Child obesity prevalence also varies by occupation-based social class. Children in households where the main income-earner works in a professional occupation have lower rates of obesity than those where the main income-earner is in a manual occupation (Figure 6).

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 report summarises the evidence for the relationship between obesity prevalence in children and socioeconomic status in the English population.

NHS

Current figures for obesity in children

The Health Survey for England (HSE) showed a steady increase in the prevalence of obesity in children aged 2–15 between 1995 and 2004. The rate of increase has slowed since 2005, suggesting a flattening out of the previous upward trend. The National Child Measurement Programme (NCMP), which surveys around one million children every year in Reception and Year 6, found a small decrease in obesity prevalence between 2009/10 and 2010/11 for children in Reception year and a slight increase in Year 6. Table 1 shows NCMP data for the last three years.

Table 1: Prevalence of overweight and obesity in children by school year, 2008/09 to 2010/11

	2008/09 (%)	2009/10 (%)	2010/11 (%)
Reception (aged 4-5 years)			
Overweight	13.2	13.3	13.2
Obese	9.6	9.8	9.4
Overweight including obese	22.8	23.1	22.6
Year 6 (aged 10-11 years)			
Overweight	14.3	14.6	14.4
Obese	18.3	18.7	19.0
Overweight including obese	32.6	33.4	33.4

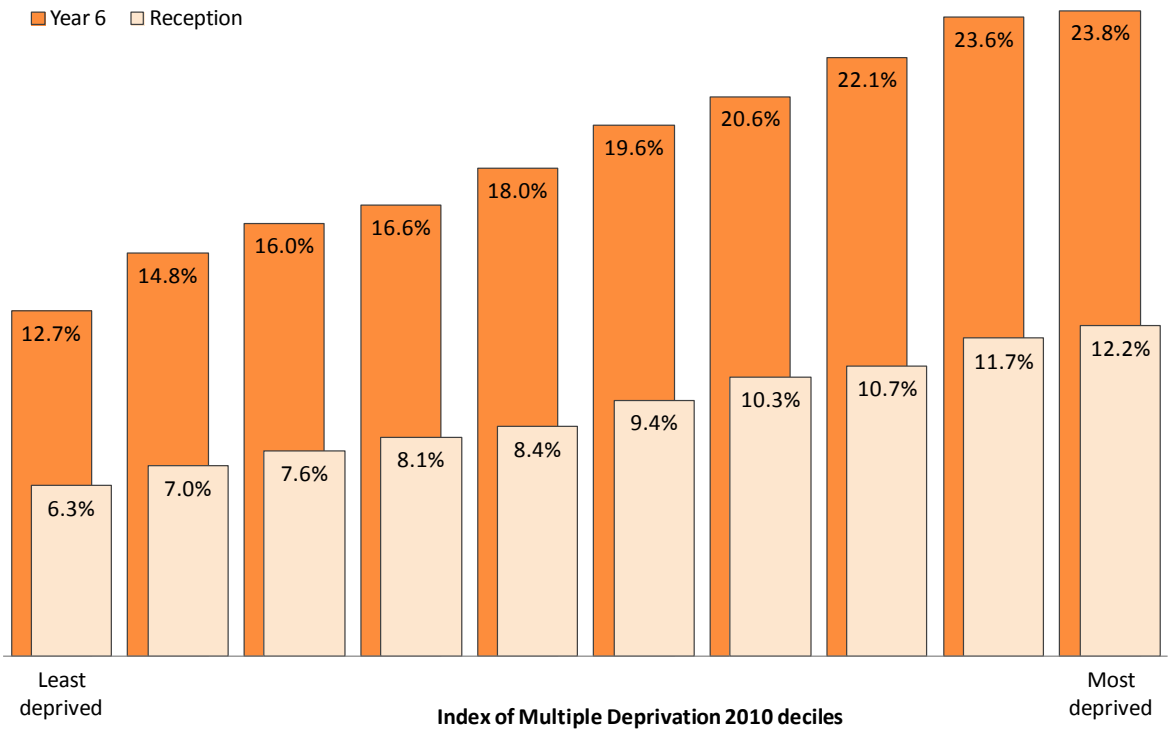
Source: National Child Measurement Programme

Child obesity and deprivation

The Index of Multiple Deprivation 2010 (IMD) is a composite measure of deprivation based on information from seven domains (income; employment; health and disability; education, skills and training; housing and services; crime; and living environment). It is based on the characteristics of a small area (usually a geographical unit called a Lower Super Output Area (LSOA) with an average population of around 1500). Figure 1 groups all children surveyed by the NCMP into ten equal-sized bands (deciles) based on the IMD score of the LSOA where they live. It shows the prevalence of obesity for Reception and Year 6 children within each decile, ranging from the least deprived to the most deprived tenth of the population.

Figure 1 shows that the prevalence of obesity in children is closely related to deprivation. There is an almost linear relationship for both age groups: among children in Reception, obesity prevalence ranges from 6.3% in the least deprived tenth of the population to 12.2% in the most deprived tenth, and for those in Year 6 it ranges from 12.7% to 23.8%.

Figure 1: Prevalence of obesity in children by school year and IMD 2010 decile, 2010/11



Source: National Child Measurement Programme

Obesity and income deprivation

The Income Deprivation Affecting Children Index (IDACI) measures the proportion of children under 16 years of age who live in income deprived households in a given area, such as an LSOA. Areas have been ranked, and then split into ten equal-sized groups (deciles), from least deprived to most deprived.

Figure 2 shows the distribution of child deprivation using IDACI deciles across England. The most deprived areas (darker shades) are predominately in the urban areas in the North West, North East, West Midlands, and London. However every region has some areas in the most deprived decile.

Figure 2: Distribution of Income Deprivation Affecting Children Index (IDACI) 2010 deciles in England

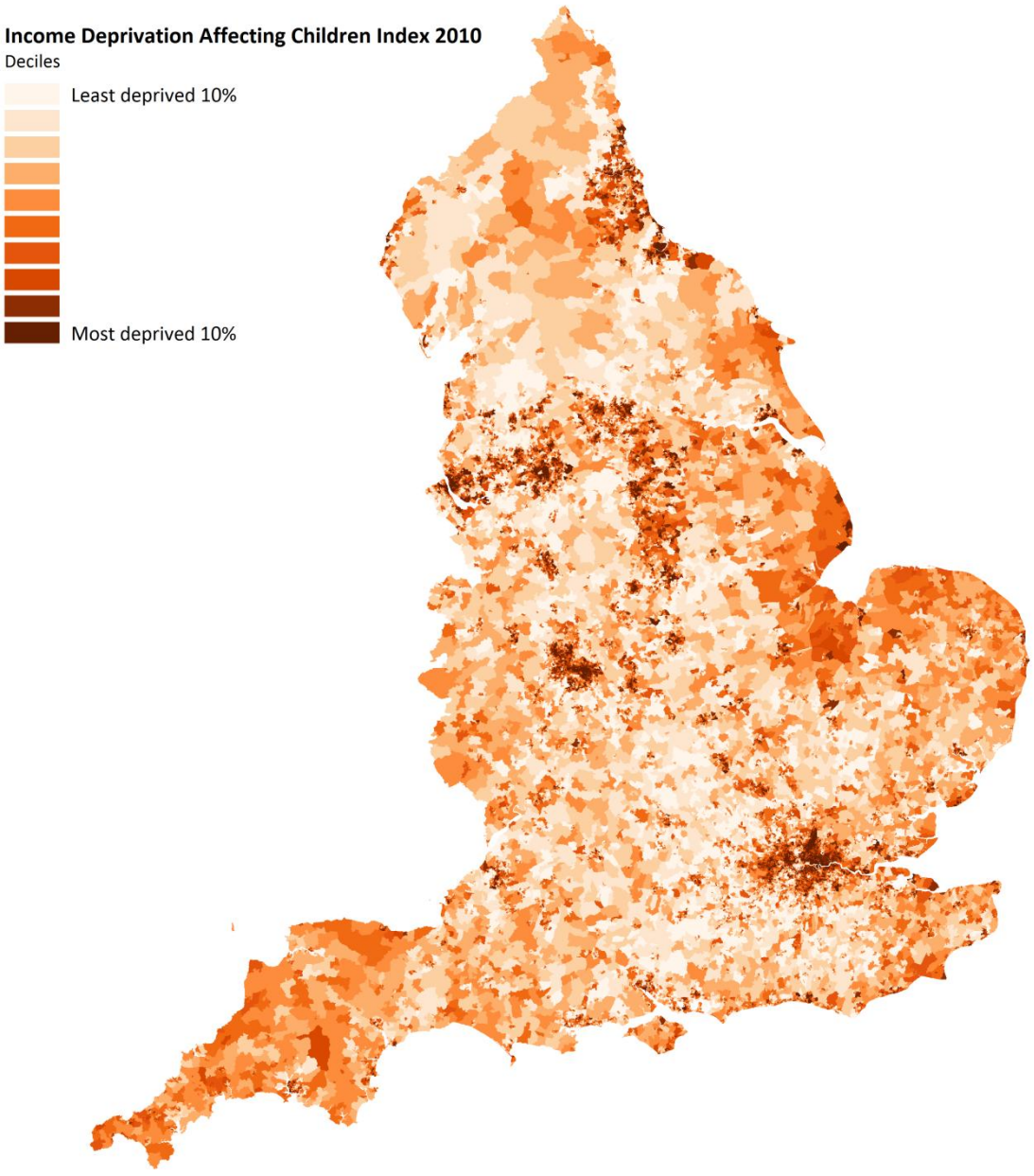
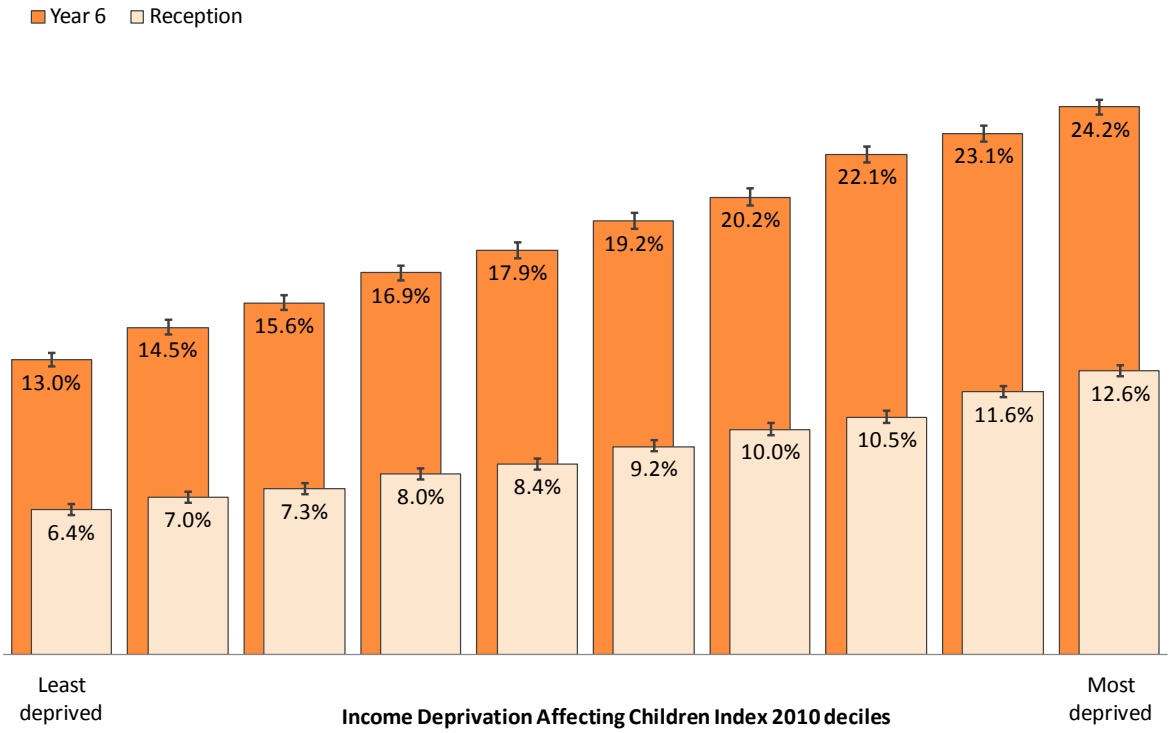


Figure 3 shows the prevalence of child obesity within each IDACI decile. As with the IMD, obesity prevalence is closely related to deprivation. It is higher in more deprived areas for both sexes and both year groups. In Reception, obesity prevalence ranges from 6.4% in the least deprived areas to 12.6% in the most deprived, and for those in Year 6 it ranges from 13.0% to 24.2%.

Figure 3: Prevalence of obesity in children by school year, by Income Deprivation Affecting Children Index (IDACI) 2010 decile, 2010/11



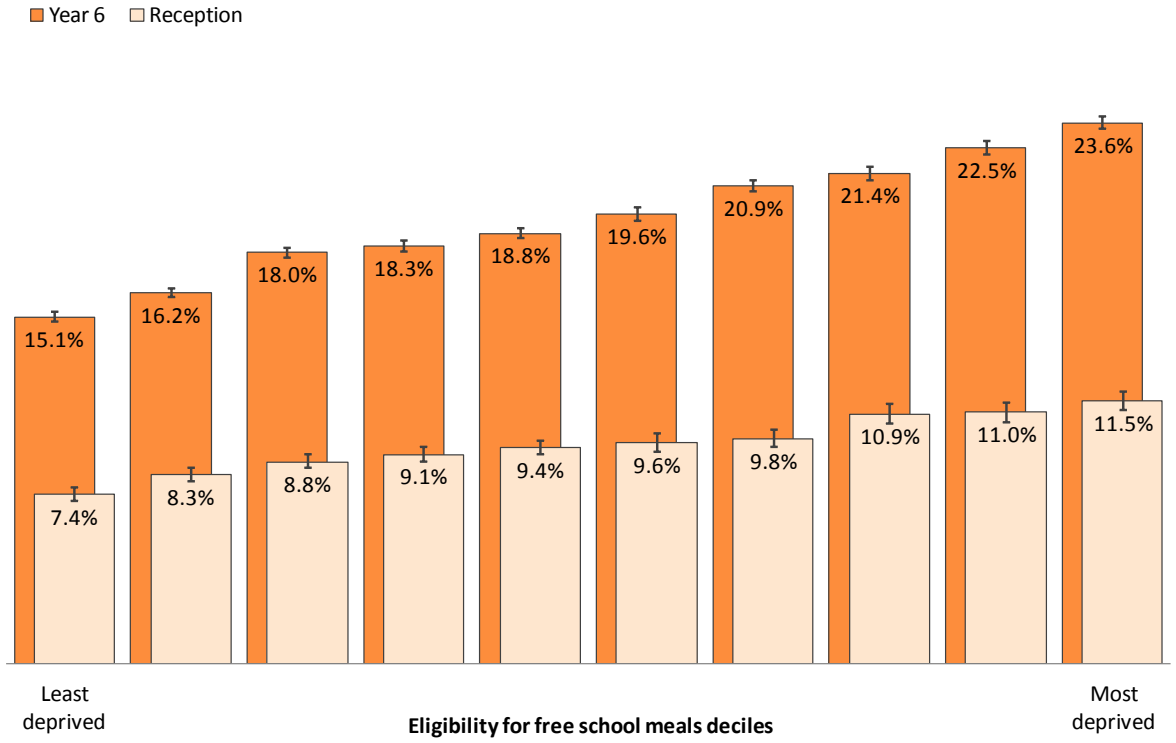
Source: National Child Measurement Programme

Child obesity and free school meal eligibility

Children are eligible for free school meals (FSM) if their parents are in receipt of certain types of benefits. Eligibility for FSM can therefore be used as an indicator of deprivation. Local Education Authorities (LEAs) provide information on the proportion of children eligible for FSM. For this analysis LEAs have been ranked by FSM eligibility and split into ten equal-sized groups (deciles), from the lowest to the highest proportion of children eligible for FSM.

Figure 4 shows the prevalence of obesity among children in Reception and in Year 6 in each FSM decile. It shows a very similar pattern to the IMD and IDACI charts above: obesity prevalence increases with increasing levels of deprivation. For children in Reception, prevalence rises from 7.4% among those in LEAs with the lowest eligibility for FSM, to 11.5% among those in LEAs with the highest eligibility. For Year 6 children, prevalence rises from 15.1% to 23.6%.

Figure 4: Prevalence of obesity among children by school year and eligibility for FSM deciles, 2010/11



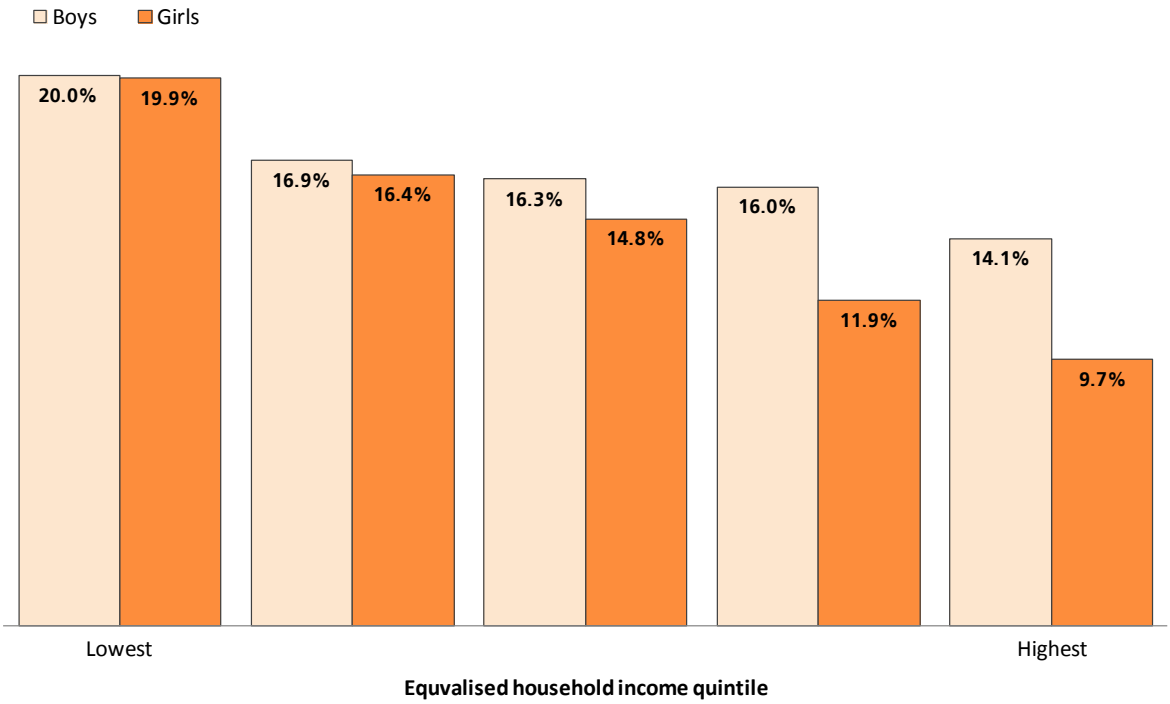
Source: National Child Measurement Programme

Child obesity and household income

The Health Survey for England (HSE) collects information on household income, adjusted to take into account the number of people living in the household ('equivalised household income'), which can be used as a measure of socioeconomic status. Figure 5 illustrates the prevalence of obesity among children split into five equal-sized groups (quintiles) by household income level. Because of the small sample size in the HSE, data from 2006 to 2010 have been combined to make the figures more robust.

Figure 5 shows a general trend of increasing obesity prevalence with decreasing household income. For both girls and boys, obesity prevalence was significantly higher in the lowest income quintile than among those in the highest.

Figure 5: Prevalence of obesity among children (aged 2 to 15) by equivalised household income quintile: Health Survey for England, 2006–2010



Source: Health Survey for England

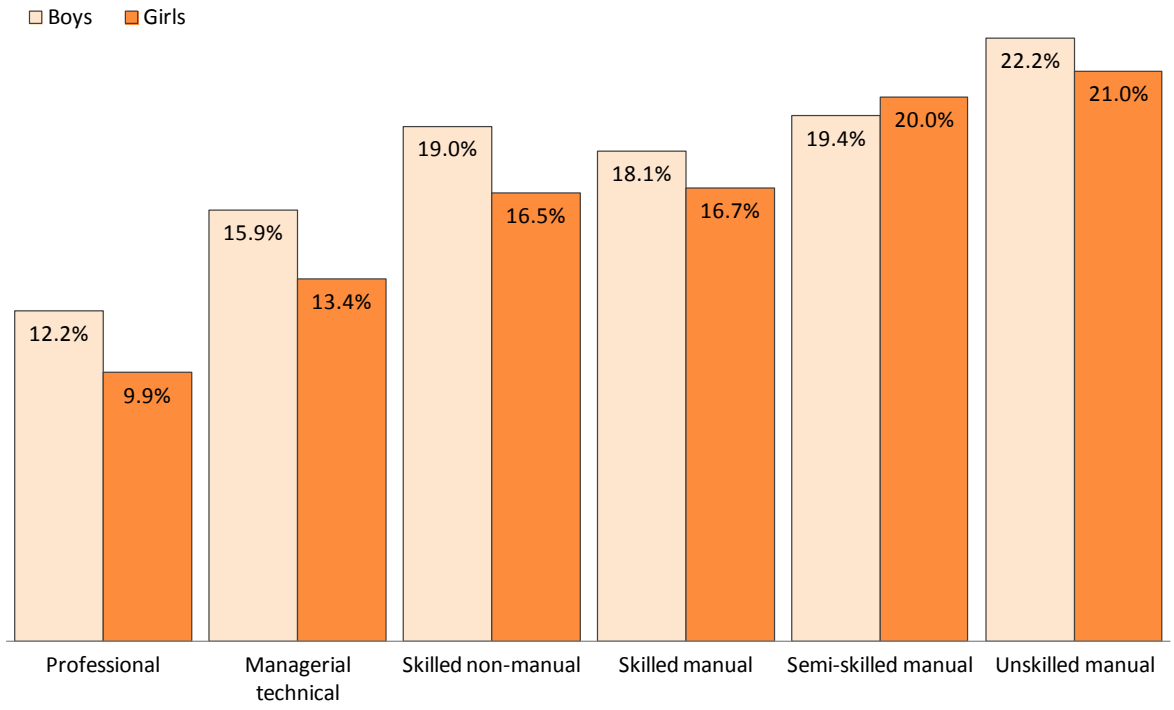
Child obesity and social class

Social class is a classification of occupational groups based on skill levels, ranging from 'professional' to 'unskilled manual'. In the HSE, social class is derived from the occupation of the reference person in the household – the main income earner. As with equivalised income, data from 2005–2009 have been combined to make the estimates more robust. Social class was not available in the 2010 HSE data, so these charts have not been updated.

Figure 6 illustrates obesity prevalence in children by the social class of the household reference person. It shows a general trend of increasing obesity prevalence with decreasing occupational skill level, from professional occupations to unskilled manual occupations.

Obesity prevalence among both girls and boys from professional households is significantly lower than among those from the skilled and unskilled manual groups. If social classes are combined into manual and non-manual groups, obesity prevalence is significantly higher in children in the manual group.

Figure 6: Prevalence of obesity among children (aged 2 to 15) by social class of household reference person: Health Survey for England, 2005–2009



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 child population. Obesity is strongly related to socioeconomic status in children, and the results are almost entirely consistent across a wide range of different indicators.

If up-to-date, individual-level information (e.g. income or social class) is available for children and their families, this provides the most accurate way of identifying children at high risk of obesity. If only geographic information such as postcode is available, then area-level indicators of socioeconomic status, such as the IMD and IDACI, provide a good indication of risk of obesity for children.

Data sources

Health Survey for England
The HSE is a cross-sectional survey which samples a representative proportion of the population.

Timing of data collection: The survey is conducted annually. Data for some of the time series are available from 1995 onwards. Certain years include 'boost samples' which focus on specific population groups: e.g. 2004 included a boost of individuals from minority ethnic groups.

Date of next release: The report on the HSE 2011 should be published online in December 2012. The data should be available from the UK Data Archive in the spring following publication of the report.

National Child Measurement Programme
The NCMP is an annual programme that measures the height and weight of children in Reception (aged 4–5 years) and Year 6 (aged 10–11 years) attending schools in England. Although the NCMP only covers certain age groups, it includes the majority of children in those year groups. The participation rate in 2010/11 was 93%. The NCMP dataset is compliant with the Code of Practice for Official Statistics and has therefore been accredited with "National Statistic" status.

Timing of data collection: The NCMP was established in 2006. Data are collected annually during the school year.

Date of next release: The Health and Social Care Information Centre will publish NCMP data for the 2011/12 school year in December 2012.

Definitions

Body mass index classification in children
BMI is a measure of weight status that adjusts for height. BMI is a person's weight in kilograms divided by the square of their height in metres. In this briefing the British 1990 growth reference (UK90) for BMI is used to determine weight status according to a child's age and sex. Children whose BMI is between the 85th and less than the 95th centile are classified as overweight and those at or above the 95th centile are classified as obese. This definition is commonly used in England for population monitoring rather than clinical purposes.

For clinical assessment, children whose BMI is between the 91st and less than the 98th centile are classified as overweight and those at or above the 98th centile are classified as obese.

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.

Useful resources

Health Survey for England
http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles-related-surveys/health-survey-for-england

http://www.dh.gov.uk/en/Publicationsandstatistics/PublishedSurvey/HealthSurveyForEngland/Healthsurveyresults/index.htm

National Child Measurement Programme
http://www.noo.org.uk/ncmp
http://www.ic.nhs.uk/ncmp

Statistics on Obesity, Physical activity and Diet: England, February 2012
http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles/obesity/statistics-on-obesity-physical-activity-and-diet-england-2012

Index of Multiple Deprivation 2010
http://www.communities.gov.uk/communities/research/indicesdeprivation/deprivation10

Income Deprivation Affecting Children Index 2010
http://www.communities.gov.uk/communities/research/indicesdeprivation/deprivation10

Free School Meals
http://www.education.gov.uk/researchandstatistics/datasets/a00209478/dfe-schools-pupils-and-their-characteristics-january-2012

Changes summary

- October 2010 – original report
- December 2011 – Updated to include 2009/10 NCMP data and 2009 Health Survey for England data where available.
- September 2012 – Updated to include 2010/11 NCMP data and 2010 Health Survey for England data where available.

Contact

Email: info@noo.org.uk
Web: www.noo.org.uk

Telephone: 01865 334900