Variations in Obesity within the UK

Obesity is a big problem in the UK, and it is growing. However recent research (November 2009) by the National Heart Forum suggests that while rates of obesity among children are still rising, the rate of increase may have started to drop – time will prove if this really is the case.

How is obesity measured? It is measured by two key indicators: Body Mass Index (BMI) (Box 1) and raised waist circumference. In 2007, 24% of adults (aged 16 or over) in England were classified as obese (BMI 30 kg/m² or over), an overall increase from 15% in 1993. Men and women were equally likely to be obese, however men were more likely than women (41% compared to 32%) to be overweight (BMI 25 to less than 30 kg/m²). 37% of adults had a raised waist circumference (see Box 1) in 2007 compared to 23% in 1993. Women were more likely than men (41% and 33% respectively) to have a raised waist circumference. In general, BMI overweight and obesity prevalence increases with age, as does a raised waist circumference (Figure 1).

Using both BMI and waist circumference to assess the risk of health problems, for men 19% were estimated to be at increased risk; 13% at high risk and 21% at very high risk. Equivalent figures for women were 15% at increased risk; 16% at high risk and 23% at very high risk. In 2007, 17% of boys aged 2 to 15, and 16% of girls were classed as obese, an increase from 11% and 12% respectively in 1995. Boys were slightly more likely than girls to be overweight or obese (31% compared to 30%). However, as stated above, indications suggest that the rising trend in obesity may be flattening out, and the next couple of years’ data will be important in confirming whether this is a continuing pattern.

A national comparison between England and Scotland can be found in the Statistics on Obesity, Physical Activity and Diet: England, January 2008 publication, using the most recent comparable data from the Scottish Health Survey 2003 and the Health Survey for England 2003. The proportion of men who were overweight including obese was the same in both Scotland and England, and figures for male obesity were also similar. Women in Scotland were more likely to be overweight including obese and obese than women in England. Men in Scotland had a slightly lower prevalence of raised waist circumference compared with men in England. However there were no significant differences between Scotland and England for the proportion of women with a raised waist circumference.

Findings from the Health Survey for England (HSE) also showed that men who were married or co-habiting were the most likely to be overweight including obese, whereas women who were widowed were the most likely to be overweight including obese. For both men and women, those

Box 1: The calculation of BMI

BMI is a widely accepted method used to define overweight and obesity. Guidance published by the National Institute for Health and Clinical Excellence (NICE) states that within the management of overweight and obesity in adults, BMI should be used to classify the degree of obesity and to determine the health risks.

NICE also recommends the use of BMI in conjunction with waist circumference as the method of measuring overweight and obesity and determining health risks. The guidance currently states that assessment of health risks associated with overweight and obesity should be based on both BMI and waist circumference for those with a BMI of less than 35 kg/m². A raised waist circumference is defined as greater than 102cm in men and greater than 88cm in women. BMI is defined as weight in kilograms divided by the square of the height in metres (kg/m²).

Definition BMI range (kg/m²)

- Underweight Under 18.5
- Normal 18.5 to less than 25
- Overweight 25 to less than 30
- Obese 30 to less than 40
- Morbidly obese 40 and over

Figure 1: Proportion of adults (a) who are overweight including obese, and (b) with a raised waist circumference, by age and gender, England, 2007

who were single were least likely to be either obese or overweight including obese.

The HSE report showed that among minority ethnic groups, Bangladeshi and Chinese men had the lowest prevalence of obesity (both 6%), while Black Caribbean and Irish men had the highest prevalence of obesity (both 25%). Chinese women had the lowest prevalence of obesity (8%).

The proportion of women who were overweight or obese was related to income, with both increasing as household income decreased. This pattern was the same when looking at waist circumference. There was no obvious pattern for income and obesity among men.

According to the HSE report, there were no significant regional differences for men or women in the prevalence of overweight or obesity but there was a significant variation in the distribution of mean waist circumference. The statistics suggest that obesity rates are above the national average in the Cumbria region, South Yorkshire and North East Derbyshire, several authorities in the East Anglia region, and the West Midlands. The majority of areas with estimated obesity rates below the national average are in the south of England, in the counties of Hampshire and Surrey. The prevalence of raised waist circumference was greatest in Yorkshire and Humber (Figure 2).

**Obesity among children**

Obesity prevalence among children increased overall between 1995 and 2007, while the prevalence of overweight remained at similar levels. Overall in 2007, three in ten children were classed as either overweight or obese. In 2007/08, one in ten pupils in Reception year was classified as obese (9.6%). This compares to around a fifth of pupils in Year 6 (18.3%). Spatially, as shown in Figure 3, the highest concentrations of obese children appear to be urban – with high concentrations within each of the major urban areas of England. There is a slight north-south pattern, with high rates in the north-west and north-east, but the pattern is not significant.

Regarding other factors, girls in the lowest income group were more likely to be obese compared to those in the highest income group. No clear relationships were found for boys. As these children grow up, the prevalence of obesity is predicted to increase to affect 60% of adult men, 50% of adult women, and 25% of their children by 2050. When looking at children's obesity prevalence compared to parental BMI, results show obesity prevalence was higher in households where both of the natural parents or the lone parent were classed as obese or overweight (Figure 4).

**Obesity and deprivation**

The importance of deprivation as a key component of health inequality has long been recognised, and it is widely accepted that deprivation is associated with higher rates of poor health. Obesity is no exception – obesity prevalence for both adults and children is known to be highest

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**Figure 2:** The Department of Health's Health Profile, 2008

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Period</th>
<th>England %</th>
<th>North East %</th>
<th>North West %</th>
<th>Yorks and H’side %</th>
<th>East Midlands %</th>
<th>West Midlands %</th>
<th>East of England %</th>
<th>London %</th>
<th>South East %</th>
<th>South West %</th>
</tr>
</thead>
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<tr>
<td>% obese adults</td>
<td>2003/05</td>
<td>23.6</td>
<td>25.2</td>
<td>24.5</td>
<td>24.1</td>
<td><strong>25.6</strong></td>
<td>26.5</td>
<td>24.8</td>
<td>18.4</td>
<td>22.0</td>
<td>23.2</td>
</tr>
<tr>
<td>% obese children</td>
<td>2006/07</td>
<td>9.9</td>
<td>10.9</td>
<td>10.2</td>
<td>9.7</td>
<td>9.7</td>
<td><strong>10.4</strong></td>
<td>9.1</td>
<td><strong>11.3</strong></td>
<td>8.7</td>
<td>9.0</td>
</tr>
</tbody>
</table>

Comparative figures for % obese adults: Wales: 21%; Scotland: 25.5%; N. Ireland: 25%

Notes:
- *Italic* = significantly better than the national average
- *Bold* = significantly worse than the national average

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**Figure 3:** Prevalence of obese children in Year 6, by PCT, England 2007/08 (%)

in the most deprived parts of the UK.

Data from the HSE show that adults in social class V (unskilled manual) have the highest prevalence of obesity whilst the lowest prevalence is found in social class I (professional). This is the case for both males and females, although the pattern between the sexes differs. Females in social class I have the lowest prevalence of obesity across the population and prevalence for this group has shown little increase over the period 1997 to 2007. By contrast, females in social class V have the highest prevalence of all adult groups across the population and this has increased substantially over the same time period. The gap in obesity prevalence between the most affluent and the most deprived has increased in both sexes since 1997, with a greater disparity among females than males.

Whilst the HSE provides good information on childhood obesity prevalence by social class, the National Child Measurement Programme (NCMP) dataset, with data on over 900,000 children, allows more detailed investigation of the distribution and nature of child obesity prevalence than has previously been possible. Analysis of NCMP data shows that for boys and girls in Year 6 (aged 10–11 years) and Reception (aged 4–5 years) obesity prevalence is closely correlated with deprivation: obesity levels are highest in the most deprived areas and show a linear decrease in prevalence down to the least deprived areas (Figure 4).

Identifying individuals and communities which are most affected (or likely to be affected) by obesity helps us to understand the determinants of obesity, and allows improved targeting of interventions to tackle the problem.

Income and diet

Income is by far the most important explanatory variable in the relationship between diet and health. Such inequalities have a clear spatial pattern that has been analysed extensively by medical geographers and sociologists.

Corner shops were common in densely populated working-class districts of industrial cities throughout the Western world until the 1960s. They provided a limited range of goods, sold in small portions, but they were conveniently located and were open for long hours. Since that time the restructuring of retail patterns has been led by supermarkets, most recently in out-of-town locations that are inconvenient for people without cars or ready access to public transport. Young, single mothers on welfare with young children find access particularly difficult, and low wage families generally cannot buy their food in bulk because of cash flow problems and a lack of adequate storage space at home. They need to shop ‘little and often’, but many of the corner stores, and also village shops, which once catered for this need have closed, unable to compete with the sheer market power of the large chains. The dietary health of old people and ethnic minorities is also at risk as a result of accessibility problems.

The supermarkets are not necessarily cheaper for food items than smaller shops, and several surveys have indicated that their prices are often higher in poorer areas. Accessibility to a healthy diet is especially compromised by a meagre choice of affordable fresh fruit and vegetables. The health implications of this kind of social exclusion are worrying, because these foods are protective against some cancers and coronary heart disease, and risk levels are therefore raised amongst certain groups in society, through no fault of their own. Reporting on a deprived area of Birmingham, The Economist (2002) found that 90% of the households in the area were within 500 metres of shops that sold junk food and fizzy drinks, but less than 20% of the houses were within 500 metres of a shop selling fresh fruit and vegetables. However, in response to these problems, many supermarkets have reduced the scale of their operations in some areas, with smaller outlets such as Tesco Metro, Tesco Express, Sainsbury Extra, together with the spread of supermarket discount outlets in inner city areas by companies such as Netto, Lidl and Aldi.

Cities are not the only areas with problems. Social exclusion also exists in areas like the western isles of Scotland. The problems here are: low levels of disposable income, high costs of transport to a shop selling food, the high cost of that food (again due to transport costs), limited choice, and limited availability of fruit and vegetables.

Obesogenic environments

Geographers and sociologists have now taken this work further to look at other factors that can create a higher incidence of obesity – known as obesogenic environments. To many people, cheaper food may be nutrient-poor, but it is often energy-dense. Healthy, fresh food has a limited life, thereby needing more frequent shopping trips which many people cannot afford, nor desire, to make. The preparation of fresh food often needs cooking skills, storage facilities and equipment which many do not have, nor wish to have.
A study in 2004 in Newcastle upon Tyne remains the only epidemiological study that has collected data simultaneously on the diets of individuals and retail availability and access. Using a range of analytical techniques, the authors were unable to demonstrate that retail factors, including availability, proximity or price, were statistically associated with dietary patterns. The factors that predicted healthiness of diet, in terms of fruit and vegetable or fat intake, were dietary knowledge and other aspects of a healthy lifestyle, such as being more active or drinking less alcohol. The study demonstrated that retail access was generally good in all parts of the city, with some advantages in some poorer areas (eg more and cheaper fruit and vegetables). The study provided some of the strongest evidence yet that retail availability has only a weak effect on dietary patterns.

Obesogenic environments are therefore characterised by the following: deprivation (high environmental deprivation scores, high population in receipt of benefits, low personal incomes), poor leisure facilities, poor access to supermarkets, problems with teenagers hanging around or with vandals, and poor public transport facilities. Similarly, obesogenic behaviours were characterised by: a lack of physical activity, no or low consumption of fruit and vegetables, low consumption of school meals, and low expenditure on food. Consequently, it is thought that more effective interventions to reduce childhood obesity should be those targeted at multiple determinants of the condition.

So what can be done to address the growing problem of obesity within the UK?

The Department of Health in partnership with other government departments has recently launched (February 2009) a new national action plan for physical activity: Be Active, Be Healthy, A Plan for Getting the Nation Moving. This plan ‘establishes a new framework for the delivery of physical activity alongside sport for the period leading up to the London 2012 Olympic Games and Paralympic Games and beyond.’ It is mainly focused on adults, as children and young people’s physical activity is being taken forward through a number of other government initiatives (see below).

Be Active, Be Healthy includes a breakdown of the healthcare-related costs of physical inactivity to help make the case for increased investment at local level. It also sets out plans for an evidence-based tool which will allow Primary Care Trusts to identify the cost burden of disease arising from physical inactivity for sub-groups of their population, and for a Health Economic Assessment Tool (HEAT) for walking, to sit alongside the existing World Health Organisation (WHO) HEAT for Cycling. The plan describes a range of actions that will be taken across government, linked to the Change4Life campaign and the 2012 Olympics. These include an expansion of the Walking the Way to Health scheme and the creation of 2012 walking routes, mass participation cycling events, free swimming, and development of the national care pathway for physical activity.

The National Obesity Observatory (NOO) has also published a briefing paper which aims to identify and describe the main sources of national level surveillance data on physical activity in adults and children in England. The paper, ‘Physical activity surveillance in England: what is measured and where are the gaps?’, focuses on data on the prevalence of physical activity amongst the population of the country, but also includes key sources of available data on determinants of physical activity (such as characteristics of the available spaces, facilities and opportunities for exercise within populated areas).

Promoting Physical Activity for Children and Young People, the latest physical activity guidance from the National Institute for Health and Clinical Excellence (NICE) was published in January 2009. The guidance is aimed at those who have a direct role in – and responsibility for – promoting physical activity among children and young people. This includes those working in the NHS, education, local authorities, and wider public, private, voluntary and community sectors. It provides advice on:

- how to promote the benefits of physical activity and encourage participation;
- high-level strategic planning for physical activity;
- the importance of consultation with children and young people and how to set about it;
- planning and providing spaces, facilities and opportunities;
- training people to run health related programmes and activities;
- how to promote physically active travel such as cycling and walking.

The recommendations relate to all children and young people up to the age of 18, with a focus on children aged 11 and under and girls aged 11 to 18. Time will tell whether any of these will have an effect.

Useful websites

National Obesity Observatory (NOO): www.noo.org.uk
The Department of Health: http://www.dh.gov.uk

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**Focus Questions**

1. Summarise the influence of each of the following factors on the distribution of obesity within England: age, gender, income levels.

2. Discuss the role of the retail sector in creating increasing levels of obesity within the UK.

3. ‘Obesity is a class issue.’ Discuss.