A survey carried out on behalf of The NHS Information Centre

Joint Health Surveys Unit

NatCen
National Centre for Social Research

Department of Epidemiology and Public Health,
UCL Medical School
# Health Survey for England – 2008 trend tables

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Introduction

The Health Survey for England is a series of annual surveys designed to measure health and health-related behaviours in adults and children living in private households in England. The survey was commissioned originally by the Department of Health and, from April 2005 by The NHS Information Centre for health and social care. Since 1994, the survey has been carried out by the National Centre for Social Research and the Department of Epidemiology at UCL Medical School.

The survey consists of an interview and nurse visit. It has a series of core elements that are included every year and special topics that are included in selected years. Core topics include general health, smoking, drinking, fruit and vegetable consumption, height, weight, blood pressure measurements and blood and saliva samples. Special topics include cardiovascular disease, physical activity, accidents, lung function measurement and certain blood analytes.

Each year there is a general population sample in which adults and children in selected households are eligible for inclusion. Adults aged 16 and over have been included since the start of the survey, children aged 2-15 were first included in 1995, and infants aged 0-1 have been included since 2001. In some years the size of the general population sample is reduced and a boost sample used to increase the proportion of participants from certain population groups, such as in 2002 when a boost sample of children and young adults was included, and 2005 when a boost of older people aged 65 and over was included. In 2008, there was a full size general population sample and an additional boost sample of children aged 2-15.

The trend tables focus upon key changes in core topics and measurements. Trend tables present the results within the general population sample, although in some years boost sample data are included. For example, 2002 and 2005 - 2008 trends among children and young people are calculated on the basis of data from children and young adults in boost and general population samples. Data from older people in care homes collected for the 2000 survey were not included in trend tables as there were likely to be significant differences in the health of older people living in private households and care homes. The boost sample of older people in 2005 is included in the trend estimates for people aged 65 and over but excluded in the estimates for all men/women/adults. Estimates for all men/women/adults in 2005 are based on the general population sample, excluding the boost of older people.

The trend tables were revised and reformatted in 2006, and some new tables were introduced while others were not continued in the trend tables series. Full details of the changes are given in the commentary to the 2006 tables, available at http://www.ic.nhs.uk/pubs/hse06trends.

The following commentary focuses on key trends in the health of adults and children since 1993, or the earliest year for which comparable data are available. Only statistically significant differences are reported. As results are based on survey data they are affected by sampling error. In 2003, non-response weighting was introduced for the first time in the HSE series. Since the weighted data provide more accurate information for the individual years for which they are available, the following analysis of trends focuses on the weighted estimates for 2003-2008. For children, data for all years have been weighted to adjust for the probabilities of selection, since a maximum of two children are included in each household; from 2003 children’s data have also included non-response weighting.

The 2006 adults’ trend tables (available at http://www.ic.nhs.uk/pubs/hse06trends) present unweighted (directly comparable with previous years) and weighted estimates for 2003-2006. Children’s results in the 2006 tables are presented both with selection weighting only (directly comparable with previous years) and with selection and non-response weighting.

As well as the prevalence trend tables for adults and children, separate tables have been produced for key variables showing estimates of the numbers of people in the population.
These number estimate tables are available for adults for Body Mass Index (BMI) categories, smoking, alcohol consumption, fruit and vegetable consumption and physical activity, and for children for BMI categories, fruit and vegetable consumption and physical activity. An introduction to these tables, with a technical note explaining how they are produced, is available in the number estimate tables. In the tables, ‘-’ represents zero, and ‘0’ represents a percentage less than 0.5 but not zero.

**Commentary**

**Adults**

**Blood pressure**

Table 1 shows blood pressure level, by survey year, age and sex. High blood pressure is defined as a systolic blood pressure at or above 140 mmHg or diastolic blood pressure at or above 90 mmHg or on medication for high blood pressure, as described in the 2003 report. Data are presented for 2003-2008, using the Omron monitor to measure blood pressure, and using the 2003 survey definition. Before 2003, blood pressure was measured using a Dinamap monitor, and the definition included use of medication which may affect blood pressure, rather than medication for blood pressure, as used since 2003. The 2006 trend tables presented blood pressure using Dinamap values (with a conversion from Omron to Dinamap from 2003-2006) and the earlier definition; these tables can be found at http://www.ic.nhs.uk/pubs/hse06trends.

The prevalence of high blood pressure in 2008 was at 31.7% among men and 28.6% among women. Compared with 2003, the proportion in 2008 with controlled hypertension increased for both sexes (5.4% to 8.3% among men and 6.0% to 9.2% among women). The proportion of adults with untreated hypertension decreased from 2003 to 2008 for both sexes (20.1% to 17.1% among men and 15.8% to 12.3% among women).

There are no general population figures for blood pressure in 2004 as only the boost sample was measured in that year.

**Table 1** Blood pressure level using Omron values and 2003 definition, by survey year, age and sex

**Height and weight**

Table 2 shows mean height, by survey year, age and sex. Between 1993 and 2008, mean height varied little from year to year. There was no obvious pattern of height variation across years for men and women within any age band.

**Table 2** Mean height, by survey year, age and sex

Table 3 shows the pattern of mean weight from 1993 to 2008. Over this period, mean weight increased from 78.9 kg to 83.6 kg among men and from 66.6 kg to 70.2 kg among women.

Among men, mean weight increased least among those aged 16-24 (an increase of 1.9 kg between 1993 and 2008). Mean weight increased most among men aged 55 and over. There was a less clear pattern with age among women.

**Table 3** Mean weight, by survey year, age and sex

**Obesity**

Table 4 shows categories of body mass index (BMI) by survey year, age and sex. BMI is defined as weight in kg divided by the square of height in metres. Adult participants can be classified into the following BMI groups.
<table>
<thead>
<tr>
<th>BMI (kg/m²)</th>
<th>Description</th>
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<tbody>
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<td>Under 18.5</td>
<td>Underweight</td>
</tr>
<tr>
<td>18.5 to less than 25</td>
<td>Normal</td>
</tr>
<tr>
<td>25 to less than 30</td>
<td>Overweight</td>
</tr>
<tr>
<td>30 and over</td>
<td>Obese</td>
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A further category, 40kg/m² and over, representing those morbidly obese, is also shown.

The proportion of adults with a normal BMI decreased between 1993 and 2008, from 41% to 33% among men and from 49% to 41% among women. Among men the proportion who were overweight decreased from 44% in 1993 to 42% in 2008; among women there has been little change.

Between 1993 and 2008, there has been a marked increase in the proportion who were obese. This proportion increased from 13% of men in 1993 to 24% in 2008 and from 16% of women in 1993 to 25% in 2008. However, the rate of increase in obesity prevalence has been slower in the second half of the period than the first half, and there are indications that the trend may be flattening out, at least temporarily. However, it is too soon to tell whether there continues to be a very gradual upward trend, with obesity in women in 2008 at its highest level since 1993 (though not significantly different from 2007).

Estimates of the number of adults in the population for BMI categories from 2003-2008 are available in the number estimate tables.

Table 4  Body mass index (BMI), by survey year, age and sex

Waist circumference, a measure of central adiposity, has been measured in a number of years of HSE: 1993-4, 1997-8, 2001-2003, 2005-2008. Following the same pattern as for BMI, there have been significant increases for both men and women in mean waist circumference, and in the proportion with a raised waist circumference (using the definition of abdominal obesity used by the USA's National Institute of Health Adult Treatment Panel III). Among men, the mean has risen from 93.2cm in 1993 to 97.2cm in 2008, and among women from 81.7cm to 87.4cm over the same period. The proportion of men with a raised waist circumference (more than 102cm) rose from 20% in 1993 to 34% in 2008, while for women the proportion with a raised waist circumference (more than 88cm) rose from 26% to 44%.

Table 5  Mean waist circumference and proportion with raised waist circumference, by survey year, age and sex

Guidance from the National Institute of Health and Clinical Excellence (NICE) currently states that the assessment of the health risks associated with overweight and obesity should be based both on BMI and waist circumference in adults with a BMI less than 35 kg/m² as follows:

<table>
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<th>BMI classification</th>
<th>Waist circumference</th>
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<tr>
<td></td>
<td>Low</td>
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<tr>
<td>Normal weight</td>
<td>No increased risk</td>
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<tr>
<td>Overweight (25 to less than 30 kg/m²)</td>
<td>No increased risk</td>
</tr>
<tr>
<td>Obesity I (30 to less than 35 kg/m²)</td>
<td>Increased risk</td>
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For men, NICE defines low waist circumference as less than 94cm, high as 94–102cm, and very high as greater than 102cm. For women, low waist circumference is less than 80cm, high is 80–88cm and very high is greater than 88cm. NICE also defines categories of Obesity II (35 to less than 40kg/m²) and Obesity III (40kg/m² or more). For adults with a BMI of 35kg/m² or more, risks are assumed to be very high with any waist circumference.

Table 6 shows combined categories of BMI and waist circumference by survey year and sex. Using these categories to assess risk, there have been significant increases for both
men and women in the proportion found to be at high risk and very high risk. The proportion of men at high risk rose from 11% in 1993 to 14% in 2008, while for women the proportion rose from 12% to 17%. The equivalent figures for the very high risk category were 11% and 21% for men and 14% and 24% for women.

Table 6  Body mass index (BMI), waist circumference and health risk, by survey year, and sex

Cigarette smoking and alcohol

Table 7 shows self-reported smoking status, by survey year and sex and Table 8 shows self-reported cigarette smoking status, by survey year, age and sex.

Among men there was an increase overall in the proportion who never regularly smoked cigarettes (from 39% in 1993 to 49% in 2008). Correspondingly, the proportion of men who were current smokers declined overall from 28% in 1993 to 24% in 2008, as did the proportion who used to smoke regularly (from 33% to 27%). The proportion of men who smoked 20 or more cigarettes per day fell from 11% in 1993 to 7% in 2008. The proportion who smoked fewer than 10 cigarettes or 10 to 19 cigarettes a day showed no significant change (7% and 10% respectively in 2008).

The percentage of women who had never regularly smoked increased from 52% in 1993 to 58% in 2008, while the proportion of current smokers decreased overall in the same period, falling from 26% to 20%. As with men, there were no significant changes in the proportion of women who smoked fewer than 10 cigarettes per day (7% in 2008). Among women there was a significant decrease in those who smoked 10 to 19 cigarettes a day (11% in 1993 to 9% in 2008) and in those who smoked 20 or more cigarettes per day (from 8% to 4% over the same time period).

It is notable that while the prevalence of cigarette smoking has decreased among most age groups among both men and women, there has been no significant change over the period among men aged 25-44, the group most likely to be current smokers in 2008.

Estimates of the number of adults in the population for self-reported cigarette smoking status from 2003-2008 are available in the number estimate tables.3

Table 7  Self-reported cigarette smoking status, by survey year and sex

Table 8  Self-reported cigarette smoking status, by survey year, age and sex

Trends in alcohol consumption between 1998 and 2008 are shown in Table 9, based on the heaviest drinking day in the last week. Up to 2002, questions were also asked about usual weekly alcohol consumption, and trend tables from 1992-2002 based on these questions were included in the 2005 trend tables (www.ic.nhs.uk/pubs/hse05trends). In the trend tables for 2006 onwards, the thresholds for drinking at recommended levels, and at twice recommended levels have been revised for all survey years to correspond to those used by the General Household Survey (GHS) and other surveys. For recommended levels, the tables show the proportion drinking up to and including four units for men and three units for women (rather than up to but below four or three units as in previous tables). For drinking at twice the recommended levels, the thresholds have changed to more than eight units for men and more than six units for women (rather than eight or more/six or more as in previous tables).

The method used by the HSE to convert drinks to units remained essentially unchanged from 1991 until 2005, based on assumptions introduced by the General Household Survey (GHS) in 1990.10 In recent years, it has become clear that these assumptions are no longer valid. The average strengths of beers and wines have increased in the intervening years, and pubs, bars and restaurants now serve drinks in a broader range of measures.11 From 2006, changes have been made in the way the HSE and other surveys estimate alcohol consumption.12 The changes have an impact on the estimated consumption of beer, wine and alcopops; the most significant of these is the revision to the unit equivalent of a glass of wine. In 2006, the conversion for a glass of wine was changed from one unit to two units; in 2007, a further adjustment was made and separate conversion rates were used for 125ml,
175ml and 250ml wine glasses.\textsuperscript{13} Table 9 shows both the original and revised estimates for 2006, and the revised estimates for 2007 onwards; the revised methodology will be used to measure trends in future years.\textsuperscript{14}

Current government guidelines advise that daily drinking should not regularly exceed 4 units for men and 3 units for women. The proportion of men consuming more than 4 units and women consuming more than 3 units on the heaviest day’s drinking in the last week did not show substantial change between 2006 and 2008 (41% in both years for men, 33% in 2006, 32% in 2008 for women). Similarly there was no change between 2006 and 2008 in the proportion who drank more than twice the recommended amount (24% to 25% among men, 16% to 15% among women). See the 2006 trend tables for discussion of trends up to that year based on the original method of conversion to units.\textsuperscript{13}

Revising the way surveys calculate adults’ alcohol consumption enables a better understanding of how much adults in England currently drink, but it is important to note that the difference between the original and revised measures do not reflect actual changes in consumption.

Estimates of the number of adults in the population for alcohol consumption (on the heaviest drinking day in the last week) from 2003-2008 are available in the number estimate tables.\textsuperscript{3}

\begin{center}
\textbf{Table 9} Estimated alcohol consumption on heaviest drinking day in the last week, by survey year, age and sex
\end{center}

\textbf{Fruit and vegetable consumption}

Questions about fruit and vegetable consumption were first included in 2001, and are designed to assess fruit and vegetable consumption in terms of portions per day. For both men and women the proportion who consumed five or more portions per day increased significantly to a peak in 2006 and 2007, from 22% in 2001 to 27% in 2007 among men, and from 25% to 31% among women. However, the proportion of adults consuming five or more portions a day was lower in 2008, when 25% of men and 29% of women reported consuming five or more portions. Further years’ data would be needed to see whether or not this is an important difference representing an underlying trend in consumption.

Estimates of the number of adults in the population for fruit and vegetable consumption from 2003-2008 are available in the number estimate tables.\textsuperscript{3}

\begin{center}
\textbf{Table 10} Fruit and vegetable consumption, by survey year, age and sex
\end{center}

\textbf{General health}

Table 11 shows trends in general health, longstanding illness and acute sickness.

Between 1993 and 2008, the proportion reporting very good and good general health has fluctuated between 74% and 78% among men and between 73% and 76% among women (76% and 75% respectively in 2008), with no clear pattern of variation. The prevalence of very bad or bad general health has ranged from 4% to 8% across both sexes over the same period.

The prevalence of longstanding illness among men increased overall from 40% in 1993 to around 44% between 1997 and 2003, but appears to have decreased gradually over the last five years; it was 40% in 2008. Among women, prevalence increased from 40% in 1993 to 47% in 2004, but has since decreased slightly and was 44% in 2008.

Acute sickness is defined as any illness or injury (including any longstanding condition) that has caused the participant to cut down in the last two weeks on things they usually did.

The prevalence of acute sickness ranged from 12% to 16% of men and from 14% to 19% of women over the period 1993 to 2008.

\begin{center}
\textbf{Table 11} General health, longstanding illness and acute sickness, by survey year and sex
\end{center}
**Cardiovascular disease**

Table 12 presents variations between 1994, 1998, 2003 and 2006 in ischaemic heart disease (IHD), stroke, and IHD or stroke.

The prevalence of IHD did not show substantial changes between 1994 and 2006 in most age groups. Overall, prevalence in men was 6.0% in 1994, 7.1% in 1998 and 6.5% in 2006. The oldest age group (75 and over) was the only one showing a consistent increase across survey years. In women, estimates remained similar over the years examined, being 4.0% in 2006. As with men, there was a gradual increase in prevalence among women aged 75 and over.

The prevalence of stroke in women increased from 1.6% in 1994 to 2.2% in 2006; similarly, the overall rate of stroke in men has risen from 1.8% to 2.4%. For men and women up to the age of 74, the prevalence of stroke, and IHD or stroke has not shown any consistent increase since 1994, while the respective prevalence rates among those aged 75 and over have risen markedly (stroke 8.6% to 13.1% in men and 7.5% to 10.7% in women from 1994 to 2006, and IHD or stroke 27.7% to 36.9% in men, 20.2% to 27.9% in women).

There are no figures available for cardiovascular disease in 2007 or 2008.

**Table 12** IHD, stroke, IHD or stroke (ever), by survey year, age and sex.

**Diabetes**

Diabetes prevalence was measured in 1994, 1998, 2003 and 2006. Prevalence almost doubled between 1994 and 2003; the largest increases were in men and women aged 45 and over. There has been a further rise since 2003 from 4.3% to 5.6% in men and from 3.4% to 4.2% in women.

There are no figures available for diabetes in 2007 or 2008.

**Table 13** Prevalence of diabetes, by survey year, age and sex.

**Physical activity**

Table 14 shows the proportion achieving different levels of physical activity in 1997, 1998, 2003, 2004, 2006 and 2008; these levels are based on self-reported activities in the last four weeks. For 2008, the module of questions on physical activity was revised and an enhanced questionnaire was developed. Full details of the questionnaire revisions are provided in the 2008 report; the main changes for 2008 were additional questions to provide more accurate data on occupational activity and sedentary time, more detail about certain types of exercise, and allowing bouts of 10 minutes of activity to be accrued towards meeting government physical activity recommendations. Two estimates are shown for 2008 in Table 14, the first using the ‘original’ method and showing results directly comparable with those in previous years, and the second using the ‘revised’ method based on the enhanced questionnaire.

In previous years the physical activity levels have been labelled high, medium and low; in 2008 the categories have been renamed to describe more accurately what they represent. The category formerly labelled ‘high’ is in fact the group that meets government recommendations for the minimum level of activity to achieve health benefits (e.g. reduction in the relative risk for cardiovascular morbidity). Definitions of these categories are as follows:

- Meets recommendations: 30 minutes or more of moderate or vigorous activity on at least five days per week
- Some activity: 30 minutes or more of moderate or vigorous activity on one to four days per week
- Low activity: lower levels of activity.

Using the original method to obtain directly comparable measures between 1997 and 2008, it is evident that the proportion meeting recommendations for levels of physical activity has increased among both men and women. This has been a gradual increase over the period,
from 32% in 1997 to 42% in 2008 for men, and from 21% to 31% for women. For both sexes the proportion reaching this level of activity fell steadily with age.

The revised method for estimating adults’ levels of physical activity provided slightly lower estimates of the proportion of adults meeting government recommendations for physical activity. The revised method indicated that 39% of men and 29% of women had met recommendations, compared with 42% and 31% respectively using the original method.

An objective measure of physical activity, using accelerometry, was also obtained in 2008. Details are provided in Chapter 3 of the 2008 report.16

Estimates of the number of adults in the population for physical activity categories for 2003, 2004, 2006 and 2008 are available in the number estimate tables; for 2008 estimates are provided using both the original and the revised methods.

Table 14 Levels of physical activity, by survey year, age and sex.

Children

Height and weight

Infants (aged 0-1) were first included in the survey in 2001. Therefore, trends in height, weight and obesity are examined separately for the periods 1995 to 2001 (ages 2-15) and 2001 to 2008 (ages 0-15).

Table 1 shows children’s mean height, by survey year, age and sex. Overall, mean height for children aged 2-15 increased between 1995 and 2001. The increase was from 131.9cm in 1995 to 133.9cm in 2001 among boys, and from 130.6cm in 1995 to 132.8cm in 2001 among girls. There was a further increase between 2001 and 2008 among boys aged 0-15 from 129.3cm to 131.9cm, and among girls aged 0-15 from 128.1cm to 130.6cm. There was no clear pattern of trends within different age groups.

Table 1 Children’s mean height, by survey year, age and sex

Table 2 shows children’s mean weight, by survey year, age and sex. Between 1995 and 2001, mean weight of children aged 2-15 increased overall from 33.0kg to 34.5kg among boys, and from 32.8kg to 34.6kg among girls. Between 2001 and 2008 there was an increase in mean weight for children aged 0-15, from 32.2kg to 33.5kg among boys, and from 32.1kg to 33.0kg among girls.

Table 2 Children’s mean weight, by survey year, age and sex

Obesity

Body mass index (BMI) is defined as weight in kilograms divided by the square of height in metres. Mean BMI by survey year, age and sex is shown in Table 3 and the prevalence of obesity and overweight among children aged 2-15 is shown in Table 4. The UK National BMI percentiles have been used to define overweight and obesity in children as at or above the 85th or 95th BMI percentiles respectively of the 1990 reference population.

Between 1995 and 2001, mean BMI increased overall among boys (from 17.7kg/m² to 18.2kg/m²) and girls (from 18.1kg/m² to 18.6kg/m²) aged 2-15. Among boys and girls aged 0-15, mean BMI rose between 2001 and 2004 (from 18.1kg/m² to 18.6kg/m² among boys and 18.4kg/m² to 19.3kg/m² among girls) though it has dropped back to 18.3kg/m² and 18.6kg/m² respectively in 2008, not significantly different from 2001.

Table 3 Children’s mean Body Mass Index (BMI), by survey year, age and sex

In 2008, the definitions for children who were overweight or obese were revised from those used in previous years to correct an error which meant that small numbers of children that should have been classified as either ‘overweight’ or ‘obese’ were omitted from these categories because of rounding of age and BMI thresholds. The revised percentages of
those overweight or obese in each year differ by less than 0.1 – 1.1 percentage points from those originally published, and 0.3% - 1.2% of children in each year were misclassified. In no cases were results significantly different from those presented previously. Some percentages appear to have increased because of rounding. Data have been corrected for each year shown in the trend tables.

Among boys and girls aged 2-15, the proportion who were obese increased overall between 1995 and 2008. The increase was from 11% in 1995 to 17% in 2008 among boys, and from 12% in 1995 to 15% in 2008 among girls. However, the pattern has not been one of uniform increase over the period. The prevalence of obesity increased steadily in most years up to around 2004 and 2005, and since then the pattern has been slightly different for boys and girls. Among boys, the proportion who were obese has remained between 17% and 19% since 2002. Among girls, there was a significant decrease in obesity between 2005 and 2006, and levels have been similar from 2006 to 2008.

The estimates for the most recent years suggest that the trend in obesity may be flattening out, and future years’ data will be important in confirming whether this is a continuing pattern, or whether the longer term trend continues upward.

Estimates of the number of children in the population for BMI categories from 2003-2008 are available in the number estimate tables. Table 4 also shows data for children aged 2-10 and 11-15. Among boys, there was a broadly similar pattern of increase for both age groups up to 2005; since then the proportion who were obese has changed little. (There was an apparently anomalous result among boys aged 11-15 in 2004.) However, among boys in the older age group, the proportion who were obese in 2008 was 21%, one of the highest levels recorded; while this was not a significant increase from 2007, it remains to be seen whether the upward trend is starting again or whether this is a temporary fluctuation.

Among girls aged 11-15, the overall pattern was similar to that among boys. The prevalence of obesity increased between 1995 and 2003 (16% to 22%); since then, apart from an apparently anomalous result in 2004, there has been no significant year on year change. However, the proportion of girls in this age group who were obese in 2008 (18%) was not significantly higher than in 1995 (16%), and it would seem that the trend has been flattening over the most recent few years. Younger girls, aged 2-10, were also not significantly more likely to be obese in 2008 than in 1995 (13% and 11% respectively), and apart from some year on year fluctuation there has been little change in this age group.

Table 4  Children’s overweight and obesity prevalence, by survey year, age group and sex

Cigarette smoking and alcohol

Table 5 shows children’s self-reported cigarette smoking status, by survey year, age and sex. Trends are examined between 1997 and 2008, as the questions were changed in 1997.

The proportion of children aged 8-15 who had ever smoked decreased overall from 18% of boys in 1997 to 11% in 2008, and from 20% to 13% of girls. On average over survey years, the proportion of boys and girls who had ever tried smoking increased with age.

Table 5  Children’s self-reported cigarette smoking status, by survey year, age and sex

Table 6 shows children’s reported experience of drinking alcohol, by survey year, age and sex. Trends are examined between 1999 and 2008, as the questions were changed in 1998 and questions on alcopops were added for 8-12 year olds in 1999. The prevalence of boys ever having had a proper alcoholic drink (including alcopops) ranged from 42% to 47% between 1999 and 2003, dropping in the following years to 29% in 2008. The proportion of girls who had ever had a proper alcoholic drink varied between 39% and 43% from 1999 to 2004, and following the same pattern as for boys has dropped since then to 32% in 2008, slightly lower than in 1999.

Table 6  Children’s self-reported experience of alcohol, by survey year, age and sex
Fruit and vegetable consumption

Between 2001 and 2004, there were no significant changes in mean portions of fruit and vegetables consumed among children aged 5-15, but there was an increase in 2005 both in the average number of portions of fruit and vegetables eaten daily and the proportion of children eating five or more portions per day (meeting the recommended guidelines). There was a further significant increase among girls in 2006. This reflects increases in fruit and vegetable consumption reported by adults (see Adults Table 10). There was no significant change in the proportion of children eating the recommended five or more portions per day, between 2006 and 2008.

In 2008, boys consumed an average of 3.1 portions of fruit and vegetables per day and girls an average of 3.3, compared with an average of between 2.4 and 2.7 portions per day among boys and between 2.6 and 2.7 portions per day among girls between 2001 and 2004. 19% of boys and 20% of girls consumed at least five portions per day in 2008, compared with 10% to 13% between 2001 to 2004. There were no clear trends in the proportion of children in different consumption bands, or trends by age.

Estimates of the number of children aged 5-15 in the population for fruit and vegetable consumption from 2003-2008 are available in the number estimate tables.3

| Table 7 | Children’s fruit and vegetable consumption, by survey year, age and sex |

General health

Table 8 shows the prevalence of very good or good general health, by survey year, age and sex. Overall, over the period from 1995 to 2008 at least 90% of boys and girls reported very good or good general health. The proportion of children reporting very good or good health increased overall between 1995 and 2008, from 90% to 94% among boys and from 92% to 95% among girls.

| Table 8 | Children’s general health, by survey year, age and sex |

Table 9 shows the prevalence of longstanding illness, by survey year, age and sex. While year on year changes were generally small, the prevalence of both longstanding and limiting longstanding illnesses appears to be decreasing gradually. Longstanding illness declined between 1995 and 2008 from 23% to 18% among boys, and from 20% to 16% among girls. Limiting longstanding illness declined from 1996 to 2008 from 10% to 7% in boys, and from 9% to 6% in girls.

| Table 9 | Children’s longstanding illness, by survey year, age and sex |

Table 10 shows the prevalence of acute sickness, by survey year, age and sex. Acute sickness is defined as any illness or injury (including any longstanding condition) that has caused the participant to cut down in the last two weeks on things they usually did. Prevalence of acute sickness varied between 8% and 14% for boys and 10% to 14% for girls, but there were no obvious trends in acute sickness between 1995 and 2008.

| Table 10 | Children’s acute sickness, by survey year, age and sex |

Physical activity

Table 11 shows the proportion of children in different physical activity categories for 2002, 2006 and 2007. In previous years the levels have been labelled high, medium and low; in 2008 the categories for physical activity have been renamed to describe more accurately what they represent. The category formerly labelled ‘high’ is in fact the group that meets government recommendations for the minimum level of activity to achieve health benefits. Definitions of these categories are as follows:

- Meets recommendations: active for at least 60 minutes on seven days per week
- Some activity: active for 30-59 minutes on seven days
- Low activity: lower level of activity than that described above
These categories were based on the Chief Medical Officer’s (CMO’s) recommendations for physical activity of at least moderate intensity for children and young people. Participants reported on physical activity in the last week (with parents answering on behalf of children aged 2-12). There was little variation across years in the proportions of children in each of the levels of physical activity, with 72% of boys and 63% of girls meeting recommendations in 2007, and 15% of boys and 19% of girls in the low activity category. Among girls, the proportion meeting recommendations decreased with age.

Estimates of the number of children aged 2-15 in the population for physical activity categories for 2006 and 2007 are available in the number estimate tables. The physical activity questionnaire for children was extensively revised in 2008, and new estimates for levels of self-reported physical activity have been derived; these are not shown as they are not comparable with the earlier years’ data. An objective measure of physical activity, using accelerometry, was also obtained in 2008. Details are available in the 2008 report.

Table 11  Children’s physical activity levels, by survey year, age and sex.

References and notes

1 In 2003, key survey variables using weighted and unweighted estimates were compared. This comparison showed that there are small differences between weighted and unweighted results, which are generally larger for men than women. See Blake, M. ‘Weighting the data’ in Sproston K, Primasteta P (eds) Health Survey for England 2003. Volume 3: Methodology and documentation, Section 7.4.2.

2 Standard errors of the mean, shown in some tables, have been calculated using the statistical package STATA, as in previous years. In the 2007 report (www.ic.nhs.uk/pubs/hse07healthy/lifestyles) and 2008 report (www.ic.nhs.uk/pubs/hse08physicalactivity) standard errors have been calculated using the SPSS Complex Samples module, and while prevalences and means are identical in each case there are some instances where the standard errors in these two packages differ by 0.01-0.02. The explanation is that the two software packages deal differently with the situation where a stratification cell/category only contains one Primary Sampling Unit (PSU). This problem can arise when the estimation focuses on a small subset of the HSE data (e.g. adults with valid BMI or children aged 8-15 with smoking data). In any case where the difference in the standard errors produced in the two packages would determine statistical significance, users should exercise caution about interpreting significance so close to the benchmark 5%.


4 In 2003, a new automated device, the Omron HEM 907, was introduced to measure blood pressure, as a replacement for the Dinamap 8100, which had become obsolete. In previous trend tables the Omron values for 2003-2006 were translated into Dinamap values to allow comparison with previous years. From 2007 the tables only present Omron values, for 2003 onwards.


6 In HSE 2003, the categorisation of BMI changed to reflect recent medical opinion which now regards it as more appropriate to define 18.5 to 25kg/m² as desirable and less than 18.5 as underweight. Reports for HSE 2003 onwards have used this revised definition, and for the purpose of trends analysis the revised definition has also been used for 1993 to 2002. This replaces the earlier definition of desirable weight of over 20 to 25kg/m². See Hirani V, Chapter 6: Anthropometric measures, overweight, and obesity in Health Survey for England 2003: Volume 2: Risk factors for cardiovascular disease.

7 Waist circumference was also measured among adults aged 65 and over in 2000.


12 The table below shows the original conversion factors used by the HSE until 2005 and the revised conversion factors used from 2006.
13 From 2007 the unit conversions for glasses of wine were as follows:

<table>
<thead>
<tr>
<th>Type of drink</th>
<th>Measure</th>
<th>Original equivalent units of alcohol</th>
<th>Revised equivalent units of alcohol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal strength beer, lager, stout, cider, shandy (less than 6% ABV)</td>
<td>Pint</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Can or bottle</td>
<td>amount in pints multiplied by 2</td>
<td>amount in pints multiplied by 2.5</td>
</tr>
<tr>
<td></td>
<td>Small cans (size unknown)</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Large cans or bottles (size unknown)</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Strong beer, lager, stout, cider (6% ABV or more)</td>
<td>Pint</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Can or bottle</td>
<td>amount in pints multiplied by 3</td>
<td>amount in pints multiplied by 4</td>
</tr>
<tr>
<td></td>
<td>Small cans (size unknown)</td>
<td>1.5</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Large cans or bottles (size unknown)</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Spirits and liqueurs</td>
<td>Glass (single measure)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sherry, martini and other fortified wines</td>
<td>Glass</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Wine</td>
<td>Glass</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Alcopops</td>
<td>Small can or bottle</td>
<td>1</td>
<td>1.5</td>
</tr>
</tbody>
</table>

14 For information on trends using the original method, and differences between the original and revised estimates for 2006, see the 2006 trend tables commentary (available at www.ic.nhs.uk/pubs/hse06trends).


17 The estimates for obesity for boys and girls aged 11-15 in 2004, based on a small sample, were higher than other years. The longer term trends suggest that 2004’s estimates may have been outliers in the series (due to random variation), and otherwise the trend appears to be flattening out for this and other age groups over the most recent years.

National Centre for Social Research
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Research Department of Epidemiology and Public Health, UCL Medical School
www.ucl.ac.uk/epidemiology

The Research Department of Epidemiology and Public Health, chaired by Professor Sir Michael Marmot, is a leading centre for research into the social determinants of health. The department has a strong interdisciplinary structure. The Department houses over 170 staff, in 11 main research groups, namely the Joint Health Surveys Unit, part of the Health and Social Surveys Research Group; Cancer Research UK-funded Health Behaviour Research Centre; Central and Eastern Europe Research Group; Dental Public Health; Health Care Evaluation Group; International Centre for Life Course Studies; MRC Unit for Lifelong Health and Ageing (including the National Survey of Health and Development); Psychobiology Group; Clinical Epidemiology Group; Genetic Epidemiology Group; and the Whitehall II Study. Collaborative research is conducted through the International Institute for Society and Health and across the Division.

The Department’s research programme is concerned particularly with social factors in health and illness and inequalities in these, including national cross-sectional surveys of health and behaviour (such as diet), longitudinal studies of cardiovascular disease (Whitehall studies) and the English Longitudinal Study of Ageing (ELSA); international studies of cardiovascular disease and diabetes; sociodental indicators of need; and the socio-economic and policy implications of an ageing population.