

Ethnic Differences in Cardiovascular Disease

2010 edition

Peter Scarborough, Prachi Bhatnagar, Asha Kaur, Kate Smolina, Kremlin Wickramasinghe and Mike Rayner

British Heart Foundation Health Promotion Research Group

Department of Public Health, University of Oxford

Index

| | Page |
|---------------------------------------------------|-----------------------------|
| Foreword | 4 |
| Introduction | 5 |
| Summary | 7 |
| Glossary | 8 |
| Chapter 1 Burden of disease | 11 |
| <i>Mortality</i> | <i>Table/Figure</i> |
| Country of birth | Table 1.1, Figure 1.1 13 |
| Country of birth, under 75 | Table 1.2 16 |
| Ethnic group | Table 1.3 17 |
| Temporal trends in CHD | Table 1.4, Figure 1.4 18 |
| Temporal trends in stroke | Table 1.5 20 |
| <i>Incidence</i> | |
| Myocardial Infarction | Table 1.7 22 |
| Stroke (South London) | Table 1.9, Figure 1.9a,b 24 |
| <i>In-hospital case fatality</i> | |
| Myocardial Infarction, Stroke | Table 1.6 21 |
| Myocardial Infarction | Table 1.8, Figure 1.8 23 |
| <i>Prevalence</i> | |
| CVD, CHD | Table 1.10, Figure 1.10 25 |
| Chapter 2 Treatment and rehabilitation | 26 |
| <i>Hospital admissions</i> | |
| Main diagnosis, men | Table 2.1a 29 |
| Main diagnosis, women | Table 2.1b 30 |
| <i>Interventions and surgical procedures</i> | |
| CABG, PCI, all revascularisations | Table 2.2, Figure 2.2 31 |
| All revascularisations (London) | Table 2.3 32 |
| Revascularisation rate adjusted for need (London) | Table 2.5 33 |

Rehabilitation

| | | |
|------------------------------------------------------------------------------------|-----------|----|
| Prescriptions after heart attack admission | Table 2.4 | 32 |
| Comparison of fatality and complications after CABG (Leicester) | Table 2.6 | 33 |
| Comparison of mortality, repeat procedures, readmission and CVD events (Leicester) | Table 2.7 | 34 |

Chapter 3 Cardiovascular disease risk factors 35

Smoking and tobacco use

| | | |
|-------------------------|-----------------------|----|
| Cigarette smoking | Table 3.1, Figure 3.1 | 39 |
| Smoking cessation | Table 3.2 | 40 |
| Use of tobacco products | Table 3.3 | 41 |

Diet

| | | |
|----------------------------------------------------------------------|-----------|----|
| Fruit and vegetable consumption | Table 3.4 | 42 |
| Energy, fat, saturated fat, sugar, salt, fibre, fruit and vegetables | Table 3.5 | 43 |

Physical activity and sport

| | | |
|---------------------------------------|-----------|----|
| Summary physical activity levels | Table 3.6 | 44 |
| Prevalence of physical activity types | Table 3.7 | 45 |

Alcohol

| | | |
|-----------------------------------------------------------|-----------|----|
| Amount consumed on heaviest drinking day in the past week | Table 3.8 | 46 |
|-----------------------------------------------------------|-----------|----|

Hypertension

| | | |
|----------------------------|-----------|----|
| Prevalence of hypertension | Table 3.9 | 46 |
|----------------------------|-----------|----|

Cholesterol

| | | |
|---------------------------|------------|----|
| Total and HDL-cholesterol | Table 3.10 | 47 |
|---------------------------|------------|----|

Obesity

| | | |
|-------------------------------------------|----------------------------|--------|
| BMI, waist-hip ratio, waist circumference | Table 3.11, Figure 3.11a,b | 48, 49 |
| Overweight and obesity in children | Table 3.12 | 50 |

Diabetes

| | | |
|-----------------------------------------|-------------------------|----|
| Prevalence of doctor-diagnosed diabetes | Table 3.13, Figure 3.13 | 51 |
|-----------------------------------------|-------------------------|----|

Appendix 52

Foreword

The British Heart Foundation (BHF) is committed to reducing inequalities in the levels of cardiovascular disease across the UK. Our work to meet this objective includes dedicated investment in communities that have a high incidence of cardiovascular disease and heart health roadshows across the country that take lifestyle advice directly to the community. Ethnicity is a vital part of our work on tackling inequalities because we know that people from some ethnic backgrounds are more likely to suffer premature cardiovascular disease than others. We have produced dedicated resources and targeted campaigns at people from these ethnic groups. This latest publication helps us to understand some of the differences in propensity to cardiovascular disease between different ethnic groups and to identify future priorities for action.

Describing the factors that influence the development of cardiovascular disease in different ethnic groups within the United Kingdom is a complicated task. There are differences in genetic makeup as well as differences in cultural and social practices between ethnic groups that might influence their risk of developing cardiovascular disease. Known risk factors, such as raised cholesterol, hypertension, obesity and diabetes differ between ethnic groups and the ways in which they combine to increase the probability of cardiovascular disease also differ. Furthermore, statistics on obesity are generally based on the body mass index (BMI) system of measurement which may not be the most appropriate measure of obesity in non-white populations, and standards for body weight in school-aged children in England are based on reference charts derived from entirely white populations. Large communities of minority ethnic groups are often found in deprived neighbourhoods, which makes it difficult to distinguish between influences that are due to ethnicity from those due to socioeconomic status. Also, there are significant differences in the ways that ethnicity data are collected within and across the four nations, making comparisons difficult.

Despite these limitations, the data in this publication confirm much of what is generally known about ethnic differences in cardiovascular disease: that coronary heart disease rates are highest in the South Asian population, that stroke rates are highest in people of African Caribbean descent, and that the prevalence of diabetes in these two ethnic groups is much higher than in the White population. *Ethnic Differences in Cardiovascular Disease* also reveals evidence of ethnic inequalities in access to hospital-based treatment and rehabilitation.

This new publication is timely as the Government and political parties in England consider the next steps for tackling health inequalities in the coming decade. The current targets on life expectancy and infant mortality have proved useful catalysts for cross-government action but there may be scope for a specific focus on ethnicity in the coming decade. Policymakers should ensure that data collection is consistent and comprehensive across the United Kingdom to help expose and address ethnic inequalities in cardiovascular disease. The BHF has identified health inequalities as a key challenge in the battle against cardiovascular disease over the next ten years, and all new services and policies should be subject to a health equality impact assessment before they are adopted.

Introduction

Ethnic Differences in Cardiovascular Disease is a supplement to the *Coronary Heart Disease Statistics* series, published regularly by the British Heart Foundation. This is the first supplement to the series to focus on describing ethnic inequalities in the experience of cardiovascular disease in the United Kingdom. As with all publications from the *Coronary Heart Disease Statistics* series, this publication aims to describe the burden of cardiovascular disease in the United Kingdom, using the most recent statistics available, and is designed for use by policy makers, health professionals, medical researchers and anyone with an interest in cardiovascular disease.

Ethnic Differences in Cardiovascular Disease is split into three broad chapters covering the following areas: burden of disease; treatment and rehabilitation; and cardiovascular disease risk factors. The first chapter provides an overview of incidence, prevalence, case-fatality and mortality rates by ethnic group. The second chapter reports on access to treatment and rehabilitation by ethnic group, focusing on the experience of different ethnic groups in National Health Service hospitals. The third chapter focuses on estimates of the prevalence of smoking, poor diet, physical inactivity, alcohol consumption, raised blood pressure, raised cholesterol, obesity and diabetes by ethnic group. A final appendix provides some data on population levels of different ethnic groups.

Wherever possible, the statistics that are presented in this publication report on the situation for the entire of the United Kingdom. However, comparable data on England, Wales, Scotland and Northern Ireland are the exception, rather than the rule, so much of the tables and figures included in this report are restricted to regions or countries within the United Kingdom. In most instances, the data that are reported have either been routinely collected for a large population (such as data from death certificates, or hospital episode statistics) or are taken from a survey of a representative sample of a large population. In some instances, individual studies on small populations have been included, where national-level data are not available.

Ethnicity is a complex concept and when measured in epidemiological studies is usually a self defined category. When a person identifies with a particular ethnic group, it may imply shared origins, social background, culture and traditions which are distinctive and maintained between generations¹. In every table and figure reported in this publication, the terminology used to describe ethnic groups has been taken from the original data source. In many cases, this is synonymous with the classification used for the 2001 census². In some cases, results for the ‘general population’ have been provided – this refers to the entire population including all ethnic groups. Sometimes the term ‘ethnic minority group’ has been used – this refers to all non-White ethnic groups in the population. Where data sources do not allow for comparisons of ethnic group, ‘country of birth’ has been used as a proxy of ethnicity. This proxy is clearly limited, as it does not distinguish between people of different ethnic groups that have been born within the United Kingdom. Such results should therefore be treated with caution.

All the tables and figures in *Ethnic Differences in Cardiovascular Disease* are also available on the British Heart Foundation's www.heartstats.org website. Further copies of this publication can be downloaded from the website, as well as copies of all recent *Coronary Heart Disease Statistics* publications.

1. Bhopal R (2007) *Ethnicity, race, and health in multicultural societies*. Oxford University Press: Oxford.
2. Sixteen ethnic groups are combined into six broad categories: White (consisting of White British, White Irish, and any other White background); Mixed (consisting of White and Black Caribbean, White and Black African, White and Asian, and any other Mixed background); Asian or Asian British (consisting of Indian, Pakistani, Bangladeshi, and any other Asian background); Black or Black British (consisting of Caribbean, African, and any other Black background); Chinese; and any other ethnic group.

Summary

- The incidence rate of myocardial infarction is higher in South Asians than in non-South Asians for both sexes.
- Stroke incidence rates in the Black ethnic group are higher than in the White ethnic group for both sexes.
- The prevalence of CHD is highest in Indian (6%) and Pakistani (8%) men.
- Cardiovascular diseases (CVD) are the main cause of death in the UK, causing almost 170,000 deaths (around a third of all deaths) in England and Wales in a year.
- For those who are dying in England and Wales but born in South Asia coronary heart disease (CHD) accounts for about a quarter of all deaths.
- Revascularisation rates are higher in the White ethnic group than in both the Black and Asian ethnic groups.
- At present, very few people from ethnic minority groups attend cardiac rehabilitation programmes.
- Around a quarter of adults in England are current smokers and the prevalence of smoking ranges from 20% in Indian men to 40% in Bangladeshi men, and from 2% in Bangladeshi women to 26% in Irish women.
- The prevalence of binge drinking is much lower in ethnic minority groups than in the general population.
- Individuals from different ethnic groups tend to store fat in different places of the body and have different body shapes. Therefore estimates of obesity taken from simple measurements cannot adequately explain ethnic differences in the prevalence of obesity.
- According to the body mass index (BMI) method prevalence of obesity is substantially lower in the South Asian community and in Chinese men than in the general population, and prevalence of overweight and obesity in young children is highest in the Black ethnic group.
- Black Caribbean, Indian, Pakistani and Bangladeshi men have a considerably higher prevalence of diabetes than the general population.

Glossary

This section provides a definition for some of the terms used throughout *Ethnic Differences in Cardiovascular Disease*.

Age standardised rate – a measure of the rate that a population would have if it had a standard age structure. It is useful to present rates as age standardised as it allows for comparisons between populations with very different age structures.

Angina – the most common form of coronary heart disease. It is characterised by a heaviness or tightness in the centre of the chest which may spread to the arms, neck, jaw, face, back or stomach. Angina occurs when the arteries become so narrow that not enough oxygen-containing blood can reach the heart when its demands are high, such as during exercise.

Angioplasty – a technique to widen a narrowed or obstructed blood vessel by inflating tightly folded balloons that have been passed into the narrowed location via a catheter. This technique squashes the fatty tissue that has caused the narrowing, hence widening the artery.

Atherosclerosis – a disease characterised by chronic inflammation in the artery walls. The disease is commonly referred to as ‘hardening’ or ‘furring’ of the arteries.

Body Mass Index (BMI) – a formula relating body weight to height to assess whether a person is overweight. BMI is calculated by dividing a person’s weight (in kilograms) by their height (in metres) squared. People with a BMI of 25-30 are considered to be overweight. Those with a BMI of over 30 are considered obese.

Cardiovascular disease (CVD) – the collective term for all diseases affecting the circulatory system (heart, arteries, blood vessels).

Cerebrovascular disease – the collective term for all diseases affecting blood vessels that supply the brain. Technically, stroke (and the many subtypes of stroke) is a subset of cerebrovascular disease, but the two terms are often used interchangeably.

Coronary Artery Bypass Graft (CABG) – an operation to bypass a narrowed section of a coronary artery and improve the blood supply to the heart.

Coronary Heart Disease (CHD) – the collective term for diseases that occur when the walls of the coronary arteries become narrowed by a gradual build-up of fatty material called atheroma. The two main forms of CHD are heart attack (also known as myocardial infarction) and angina.

Diabetes – a disease caused by a lack of insulin (type 1) or an increased resistance of the body to insulin (type 2). Diabetes is characterised by high blood glucose levels. The resulting chronic high blood glucose levels (hyperglycaemia) are associated with long-term damage, dysfunction and failure of various organs, especially the eyes, kidneys, nerves, heart and blood vessels.

HDL (High Density Lipoprotein) cholesterol – the fraction of cholesterol that removes cholesterol (via the liver) from the blood. Low levels of HDL-cholesterol are associated with an increased risk of atherosclerosis.

Heart attack – the condition caused by a blockage of one of the coronary arteries when the heart is starved of oxygen. A heart attack usually causes severe pain in the centre of the chest. The pain lasts for more than fifteen minutes, and may last for many hours. The pain usually feels like a heaviness or tightness which may also spread to the arms, neck, jaw, face, back or stomach. There may also be sweating, light-headedness, nausea or shortness of breath. Sometimes a heart attack can be ‘silent’ and produce little discomfort.

Heart failure – a clinical syndrome which occurs when the heart is unable to pump enough blood to meet the demands of the body. It occurs because the heart is damaged or overworked. Some people with moderate heart failure may have very few symptoms. People with moderate or severe heart failure suffer from a number of problems, including shortness of breath, general tiredness and swelling of the feet and ankles.

Incidence – a measure of morbidity based on the number of new episodes of an illness arising in a population over a defined time period.

International Classification of Disease (ICD) – a coding system published by the World Health Organization that provides an internationally recognised method of coding diseases in order to categorise mortality and morbidity statistics. The ICD is revised approximately every ten years. The tenth and most recent revision (ICD-10) was introduced in 2000. Change between revisions can result in discontinuities in mortality and morbidity trends, such as the move from ICD-9 to ICD-10 which resulted in an artificial increase in the number of reported stroke incidents and mortalities.

LDL (Low Density Lipoprotein) cholesterol – the more harmful fraction of cholesterol which carries cholesterol from the liver to the cells of the body and causes atherosclerosis.

Myocardial infarction (MI) – see heart attack.

Office of Population, Censuses and Surveys Classification of Surgical Operations and Procedures 4th Revision (OPCS-4) – a classification system for surgical operations and procedures conducted in the National Health Service.

Percutaneous Coronary Intervention (PCI) – see angioplasty.

Prevalence – a measure of morbidity based on the current level of a disease in the population at any particular time.

Primary prevention – interventions aimed at reducing the risk of disease before the disease has presented. Primary prevention interventions are usually aimed at populations, such as regulation of tobacco advertising.

Secondary prevention – interventions aimed at reducing the risk of disease recurrence after the disease has initially presented. Secondary prevention interventions are therefore targeted at individuals already at high-risk of disease.

Stroke – the consequence of an interruption to the flow of blood to the brain. A stroke can vary in severity from a passing weakness or tingling of a limb to a profound paralysis, coma and death.

Waist Circumference (WC) – a measure of central obesity, where fat is concentrated in the abdomen. For men, central obesity is defined as a waist circumference greater than 102cm. For women, central obesity is defined as a waist circumference of greater than 88cm.

Waist to Hip Ratio (WHR) – a measure of central obesity, where fat is concentrated mainly in the abdomen. For men, central obesity is defined as a WHR of 0.95 or over. For women, central obesity is defined as a WHR of 0.85 or over.

For a more comprehensive glossary, please visit www.heartstats.org

1. Burden of disease

Cardiovascular disease (CVD) affects different ethnic groups in different ways. This chapter explores differences in mortality, incidence, prevalence and case fatality for CVD experienced by different ethnic groups in the UK.

There are no specific government targets to reduce ethnic inequalities in the burden of cardiovascular disease in the UK. The Department of Health has recommended that local authorities set their own targets according to local demography. Nearly 45% of people from ethnic minority groups in England live in local authorities that have been defined as Spearhead areas by the Government – the most deprived fifth of local authorities in England. As Spearhead areas have been targeted to help narrow health inequalities, it is expected that ethnic groups living in these areas will benefit¹. Non-White ethnic groups in the UK tend to be more deprived than the White population (see appendix) and it is unclear to what extent ethnic inequalities in cardiovascular disease are due to socioeconomic inequalities.

Mortality

Cardiovascular diseases are the main cause of death in the UK, causing almost 170,000 deaths in England and Wales in 2008 (around a third of all deaths). The main forms of CVD are coronary heart disease (CHD) and stroke. Around half (46%) of all deaths from CVD are from CHD and more than a quarter from stroke (28%). CHD alone is the most common cause of death in England and Wales (15% of all deaths).

Routinely collected mortality statistics are not available by ethnic group, as death certificates only record the country of birth of the deceased. For those born in South Asia but dying in England and Wales, CHD accounts for about a quarter of all deaths, whereas for those born in the UK, CHD is responsible for 15% of all deaths. Higher CHD deaths are not found in all migrant groups, with CHD accounting for only 9% of deaths for people born in China. There is also a strong gender difference, with men born in Pakistan, Bangladesh and East Africa far more likely to die from CHD than women born in the same countries. These patterns are similar for premature mortality (under 75 years of age) (Tables 1.1 and 1.2).

In general, mortality levels for CHD were higher than for stroke, with the exception of people born in China. People born in West Africa and the Caribbean had similar mortality levels for both conditions.

Mortality data by ethnic group, rather than country of birth, is available from the ONS Longitudinal Study, which uses a 1% sample of the England population taken from the 1991 and 2001 censuses. This sample has been followed up for major events including mortality. To date, this is the best source of CVD mortality data by ethnic group that is representative of the entire of England, however mortality rates calculated for some ethnic groups are based on small numbers. The results of this study present a different pattern to that shown by the country of birth data. Of the White, Black and South Asian groups, the highest CHD mortality rate is found amongst White people, and the lowest rate amongst Black people.

South Asian and Black people died more commonly of stroke than CHD, however this was much more

pronounced in the Black ethnic group. Under the age of 75, this pattern remains for the Black group, but is reversed for the other ethnic groups (Table 1.3).

Trends in mortality rates

Mortality rates from CHD for those aged between 30 and 69 years have been falling since 1979. The decline has been reasonably steady in men for most countries of birth, but for women progress has been more variable. There has only been a small decrease for Pakistani women (14%), compared to a sharp decrease for Indian (53%) and East African (55%) women (Table 1.4 and Figure 1.4). Stroke has also declined since the late 1970s and has done so fairly steadily across both sexes and by country of birth (Table 1.5 and Figure 1.5)

Incidence

Incidence rates of cardiovascular diseases are difficult to measure. Whereas survey data can allow for estimates of prevalence rates, there are currently no national-level routinely collected datasets that allow for an estimate of the incidence of all cardiovascular diseases. It is possible to estimate incidence rates of acute cardiovascular conditions that are likely to result in either hospitalisation or death, such as myocardial infarction, using datasets that link hospital episode and mortality statistics². Using such a dataset, it is estimated that the incidence rate of myocardial infarction in Scotland is higher in South Asians than in non-South Asians for both sexes (Table 1.7).

An individual stroke register study focusing on South London found that stroke incidence rates in the Black ethnic group were higher than in the White ethnic group. Incidence rates in both groups declined between the mid 1990s and 2003/04 by around a quarter in the White group and 52% in Black women and 17% in Black men (Table 1.9).

Case fatality

Estimates of case fatality rates for cardiovascular diseases can also be generated using linked hospital episode and mortality statistics datasets. Using such a dataset, it is estimated that in-hospital case fatality rates for myocardial infarction and stroke in England in 2004/05 were lower in the South Asian and Black ethnic groups than in the White ethnic groups (Table 1.6). These data do not include deaths that occurred before hospitalisation, which may differ between ethnic groups, and have not been age-standardised to account for differences in the age structure of the different ethnic groups. However, the results are partially corroborated by Scottish data comparing myocardial infarction case-fatality rates in South Asians and Non-South Asians, which suggest that South Asians had lower case fatality for myocardial infarction compared to non-South Asians, after one month, three months and six months (Table 1.8 and Figure 1.8).

Prevalence

In 2004, the prevalence of CVD was highest in the Irish ethnic group and the general population (around 15%). Indian and Pakistani men (11% and 12% respectively) have the next highest rates, with Black African men (2%) having the lowest. The prevalence of CHD was highest in Indian (6%), Pakistani (8%) and Irish (6%) men. A similar pattern is apparent in women, although all had lower levels than men (Table 1.10).

1. Parliamentary Office of Science and Technology (2007). *Ethnicity and Health*. Postnote, number 276. Parliamentary Office of Science and Technology: London
2. Using these datasets, incidence of myocardial infarction is assumed to equal all first hospital admissions for myocardial infarction plus all outside-of-hospital from myocardial infarction where no previous hospital admission has occurred. This method does not record the small number of myocardial infarctions that do not result in either death or hospitalisation.

Table 1.1 All deaths by cause, sex and country or region of birth, 2008, England and Wales

| | | Country or Region of Birth | | | | | | | | | |
|----------------------------------------------------------------------|--------------|----------------------------|---------------|--------------|-------------|--------------|--------------|--------------|------------|------------|---------------|
| | | Great Britain | Ireland | East Africa | West Africa | Caribbean | India | Pakistan | Bangladesh | China | Rest of world |
| All causes | Men | 218,753 | 4,780 | 964 | 412 | 2,041 | 2,759 | 1,125 | 463 | 157 | 10,769 |
| | Women | 243,504 | 5,252 | 756 | 294 | 1,393 | 2,446 | 827 | 215 | 154 | 10,765 |
| | Total | 462,257 | 10,032 | 1,720 | 706 | 3,434 | 5,205 | 1,952 | 678 | 311 | 21,534 |
| All diseases of the circulatory system (I00-I99) | Men | 72,263 | 1,555 | 320 | 145 | 723 | 1,152 | 514 | 201 | 42 | 3,625 |
| | Women | 79,746 | 1,614 | 198 | 86 | 515 | 958 | 318 | 72 | 43 | 3,668 |
| | Total | 152,009 | 3,169 | 518 | 231 | 1,238 | 2,110 | 832 | 273 | 85 | 7,293 |
| Stroke (I60-I69) | Men | 15,800 | 363 | 62 | 42 | 207 | 277 | 123 | 50 | 16 | 833 |
| | Women | 26,166 | 516 | 63 | 24 | 178 | 306 | 111 | 22 | 21 | 1,190 |
| | Total | 41,966 | 879 | 125 | 66 | 385 | 583 | 234 | 72 | 37 | 2,023 |
| Coronary heart disease (I20-I25) | Men | 38,733 | 836 | 212 | 54 | 298 | 696 | 326 | 131 | 14 | 1,957 |
| | Women | 30,449 | 644 | 80 | 22 | 159 | 449 | 155 | 39 | 13 | 1,444 |
| | Total | 69,182 | 1,480 | 292 | 76 | 457 | 1,145 | 481 | 170 | 27 | 3,401 |
| Other diseases of the circulatory system (I00-I19, I26-I59, I70-I99) | Men | 17,730 | 356 | 46 | 49 | 218 | 179 | 65 | 20 | 12 | 835 |
| | Women | 23,131 | 454 | 55 | 40 | 178 | 203 | 52 | 11 | 9 | 1,034 |
| | Total | 40,861 | 810 | 101 | 89 | 396 | 382 | 117 | 31 | 21 | 1,869 |
| Diabetes (E10-E14) | Men | 2,250 | 36 | 18 | 7 | 76 | 85 | 30 | 22 | 0 | 117 |
| | Women | 2,533 | 34 | 12 | 2 | 70 | 68 | 28 | 12 | 1 | 127 |
| | Total | 4,783 | 70 | 30 | 9 | 146 | 153 | 58 | 34 | 1 | 244 |
| Cancer (C00-D48) | Men | 66,928 | 1,498 | 246 | 149 | 706 | 571 | 237 | 114 | 52 | 3,010 |
| | Women | 61,374 | 1,393 | 253 | 127 | 435 | 504 | 192 | 57 | 49 | 2,903 |
| | Total | 128,302 | 2,891 | 499 | 276 | 1,141 | 1,075 | 429 | 171 | 101 | 5,913 |
| Colo-rectal cancer (C18-C21) | Men | 7,019 | 165 | 39 | 10 | 75 | 48 | 17 | 8 | 5 | 291 |
| | Women | 5,956 | 160 | 20 | 8 | 39 | 52 | 13 | 1 | 5 | 302 |
| | Total | 12,975 | 325 | 59 | 18 | 114 | 100 | 30 | 9 | 10 | 593 |
| Lung cancer (C33,C34) | Men | 15,617 | 433 | 35 | 19 | 123 | 115 | 50 | 35 | 11 | 751 |
| | Women | 12,054 | 366 | 25 | 13 | 35 | 65 | 16 | 11 | 10 | 470 |
| | Total | 27,671 | 799 | 60 | 32 | 158 | 180 | 66 | 46 | 21 | 1,221 |
| Breast cancer (C50) | Men | 59 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| | Women | 9,694 | 170 | 50 | 42 | 87 | 93 | 38 | 3 | 7 | 508 |
| | Total | 9,753 | 171 | 50 | 42 | 88 | 94 | 38 | 3 | 7 | 508 |
| Other cancers (C00-C17, C22-C32, C35-C49, C51-D48) | Men | 44,233 | 899 | 172 | 120 | 507 | 407 | 170 | 71 | 36 | 1,968 |
| | Women | 33,670 | 697 | 158 | 64 | 274 | 294 | 125 | 42 | 27 | 1,623 |
| | Total | 77,903 | 1,596 | 330 | 184 | 781 | 701 | 295 | 113 | 63 | 3,591 |
| Respiratory disease (J00-J99) | Men | 29,930 | 763 | 88 | 17 | 172 | 356 | 115 | 53 | 25 | 1,263 |
| | Women | 36,022 | 920 | 75 | 19 | 90 | 332 | 98 | 18 | 16 | 1,336 |
| | Total | 65,952 | 1,683 | 163 | 36 | 262 | 688 | 213 | 71 | 41 | 2,599 |
| Injuries and poisoning (S00-T98) | Men | 9,517 | 150 | 92 | 27 | 53 | 99 | 62 | 21 | 11 | 865 |
| | Women | 6,299 | 131 | 39 | 7 | 24 | 54 | 19 | 5 | 6 | 412 |
| | Total | 15,816 | 281 | 131 | 34 | 77 | 153 | 81 | 26 | 17 | 1,277 |
| All other causes | Men | 36,566 | 778 | 200 | 67 | 311 | 496 | 167 | 52 | 27 | 1,889 |
| | Women | 56,544 | 1,160 | 179 | 53 | 259 | 530 | 172 | 51 | 39 | 2,319 |
| | Total | 93,110 | 1,938 | 379 | 117 | 570 | 1,026 | 339 | 103 | 66 | 4,211 |

Notes: Regions are grouped according to the United Nations Statistics Division 2009. For details, see <http://unstats.un.org/unsd/methods/m49/m49regin.htm>

Source: Office for National Statistics (2009) Personal communication.

Figure 1.1a Proportion of deaths by cause and country or region of birth, men, 2008, England and Wales

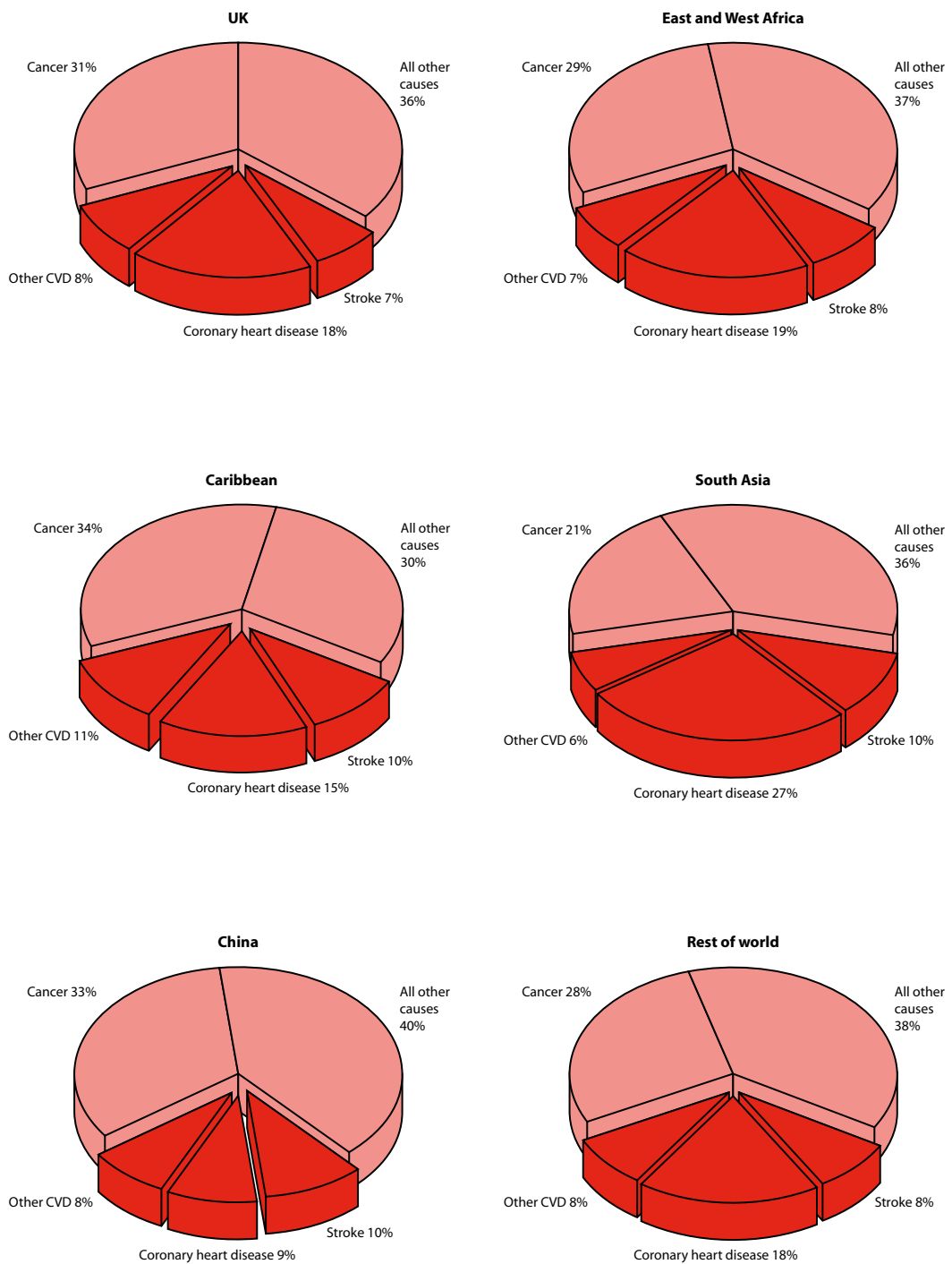


Figure 1.1b Proportion of deaths by cause and country or region of birth, women, 2008, England and Wales

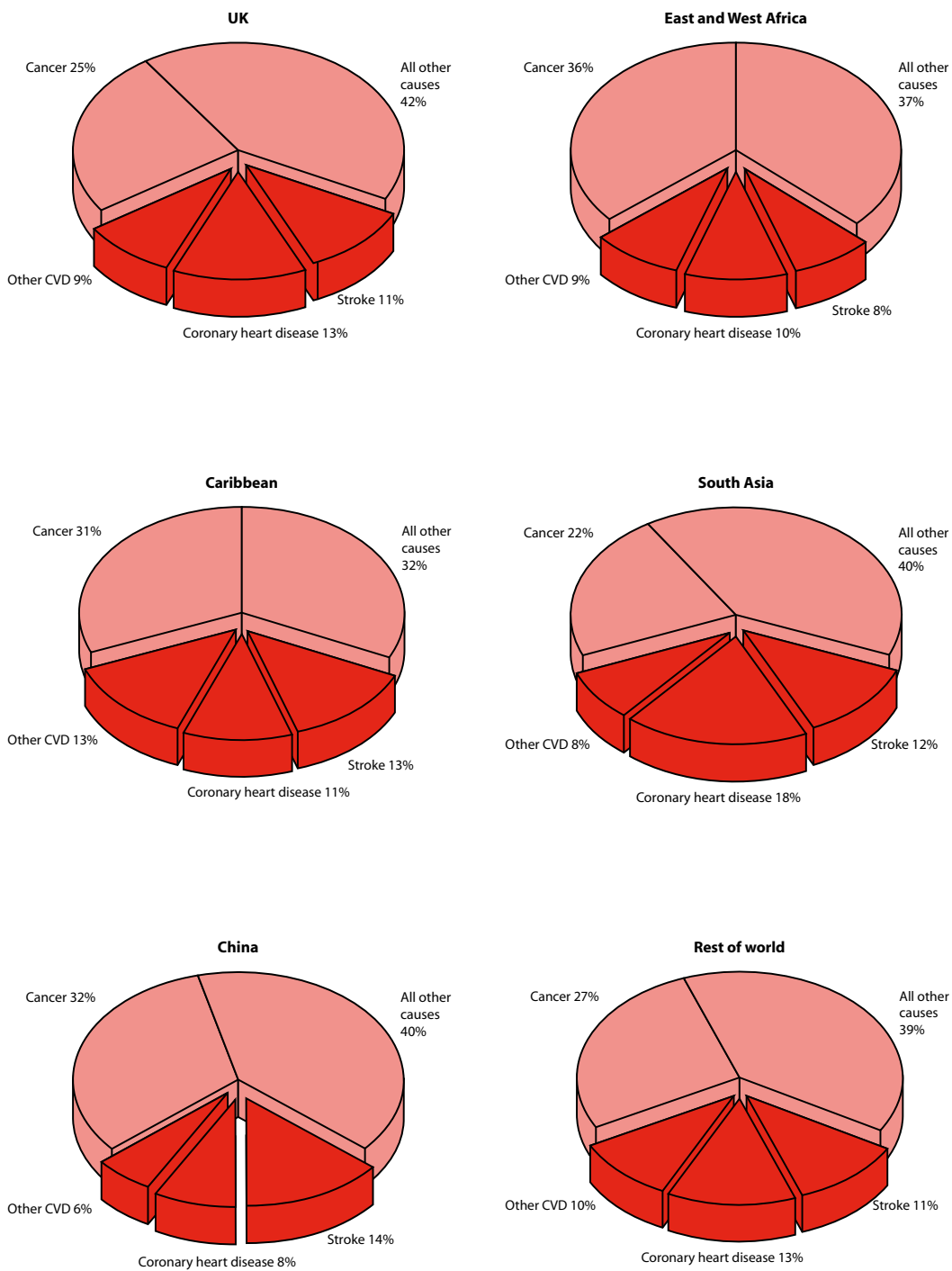


Table 1.2 Deaths under 75 by cause, sex and country or region of birth, 2008, England and Wales

| | | <i>Country or Region of Birth</i> | | | | | | | | | |
|----------------------------------------------------------------------|-------|-----------------------------------|---------|-------------|-------------|-----------|-------|----------|------------|-------|---------------|
| | | Great Britain | Ireland | East Africa | West Africa | Caribbean | India | Pakistan | Bangladesh | China | Rest of world |
| All causes | Men | 89,614 | 2,080 | 728 | 375 | 934 | 1,255 | 668 | 319 | 63 | 4,680 |
| | Women | 61,009 | 1,385 | 496 | 293 | 602 | 765 | 433 | 144 | 32 | 2,954 |
| | Total | 150,623 | 3,465 | 1,224 | 668 | 1,536 | 2,020 | 1,101 | 463 | 95 | 7,634 |
| All diseases of the circulatory system (I00-I99) | Men | 25,153 | 611 | 228 | 145 | 309 | 490 | 299 | 136 | 12 | 1,272 |
| | Women | 12,070 | 295 | 88 | 75 | 170 | 248 | 142 | 47 | 2 | 632 |
| | Total | 37,223 | 906 | 316 | 220 | 479 | 738 | 441 | 183 | 14 | 1,904 |
| Stroke (I60-I69) | Men | 3,702 | 94 | 44 | 36 | 62 | 92 | 56 | 30 | 4 | 216 |
| | Women | 2,964 | 67 | 25 | 21 | 54 | 56 | 38 | 18 | 0 | 189 |
| | Total | 6,666 | 161 | 69 | 57 | 116 | 148 | 94 | 48 | 4 | 405 |
| Coronary heart disease (I20-I25) | Men | 15,598 | 387 | 155 | 64 | 146 | 335 | 209 | 97 | 4 | 757 |
| | Women | 5,408 | 162 | 37 | 19 | 54 | 140 | 83 | 23 | 2 | 271 |
| | Total | 21,006 | 549 | 192 | 83 | 200 | 475 | 292 | 120 | 6 | 1,028 |
| Other diseases of the circulatory system (I00-I19, I26-I59, I70-I99) | Men | 5,853 | 130 | 29 | 45 | 101 | 63 | 34 | 9 | 4 | 299 |
| | Women | 3,698 | 66 | 26 | 35 | 62 | 52 | 21 | 6 | 0 | 172 |
| | Total | 9,551 | 196 | 55 | 80 | 163 | 115 | 55 | 15 | 4 | 471 |
| Diabetes (E10-E14) | Men | 814 | 13 | 11 | 6 | 26 | 33 | 17 | 11 | 0 | 40 |
| | Women | 531 | 5 | 6 | 2 | 18 | 22 | 13 | 7 | 0 | 34 |
| | Total | 1,345 | 18 | 17 | 8 | 44 | 55 | 30 | 18 | 0 | 74 |
| Cancer (C00-D48) | Men | 32,834 | 789 | 188 | 126 | 362 | 303 | 157 | 87 | 26 | 1,453 |
| | Women | 28,040 | 624 | 204 | 141 | 282 | 266 | 141 | 39 | 19 | 1,322 |
| | Total | 60,874 | 1,413 | 392 | 267 | 644 | 569 | 298 | 126 | 45 | 2,775 |
| Colo-rectal cancer (C18-C21) | Men | 3,420 | 88 | 26 | 10 | 46 | 22 | 11 | 6 | 3 | 142 |
| | Women | 2,246 | 63 | 13 | 11 | 20 | 23 | 10 | 1 | 3 | 107 |
| | Total | 5,423 | 151 | 39 | 21 | 66 | 45 | 21 | 7 | 6 | 492 |
| Lung cancer (C33,C34) | Men | 8,240 | 251 | 29 | 13 | 78 | 66 | 28 | 28 | 5 | 393 |
| | Women | 6,054 | 184 | 20 | 18 | 30 | 27 | 10 | 8 | 6 | 209 |
| | Total | 14,294 | 435 | 49 | 31 | 108 | 93 | 38 | 36 | 11 | 602 |
| Breast cancer (C50) | Men | 26 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| | Women | 5,163 | 89 | 46 | 32 | 62 | 65 | 34 | 3 | 1 | 311 |
| | Total | 5,189 | 89 | 46 | 32 | 63 | 65 | 34 | 3 | 1 | 311 |
| Other cancers (C00-C17, C22-C32, C35-C49, C51-D48) | Men | 21,148 | 450 | 133 | 103 | 237 | 215 | 118 | 53 | 18 | 918 |
| | Women | 14,577 | 288 | 125 | 80 | 170 | 151 | 87 | 27 | 9 | 695 |
| | Total | 35,968 | 738 | 258 | 183 | 407 | 366 | 205 | 80 | 27 | 1,370 |
| Respiratory disease (J00-J99) | Men | 7,880 | 222 | 52 | 10 | 68 | 108 | 53 | 26 | 5 | 322 |
| | Women | 6,098 | 190 | 27 | 16 | 25 | 64 | 39 | 9 | 1 | 214 |
| | Total | 13,978 | 412 | 79 | 26 | 93 | 172 | 92 | 35 | 6 | 536 |
| Injuries and poisoning (S00-T98) | Men | 7,206 | 112 | 88 | 32 | 38 | 80 | 51 | 20 | 10 | 721 |
| | Women | 2,574 | 43 | 33 | 7 | 15 | 28 | 10 | 5 | 5 | 221 |
| | Total | 9,780 | 155 | 121 | 39 | 53 | 108 | 61 | 25 | 15 | 942 |
| All other causes | Men | 14,428 | 333 | 161 | 56 | 131 | 241 | 91 | 39 | 10 | 872 |
| | Women | 10,710 | 228 | 138 | 52 | 91 | 137 | 88 | 37 | 5 | 532 |
| | Total | 25,138 | 561 | 299 | 108 | 222 | 378 | 179 | 76 | 15 | 1,404 |

Notes: Regions are grouped according to the United Nations Statistics Division 2009. For details, see <http://unstats.un.org/unsd/methods/m49/m49regin.htm>

Source: Office for National Statistics (2009) Personal communication.

Table 1.3 *Age standardised death rates per 100,000 from CHD, stroke and other CVD by ethnic group and sex, all ages and under 75, 2002/07, England and Wales*

| | All ages | | | Under 75 | | |
|---------------------------|----------|--------|-----------|----------|--------|-----------|
| | CHD | Stroke | Other CVD | CHD | Stroke | Other CVD |
| White | | | | | | |
| Men | 149 | 105 | 165 | 73 | 34 | 68 |
| Women | 71 | 111 | 126 | 26 | 31 | 46 |
| South Asian | | | | | | |
| Men | 107 | 128 | 111 | 71 | 41 | 37 |
| Women | 85 | 109 | 61 | 43 | 40 | 47 |
| Black | | | | | | |
| Men | 49 | 163 | 106 | 20 | 65 | 59 |
| Women | 35 | 139 | 75 | 12 | 37 | 50 |
| Other Ethnic Group | | | | | | |
| Men | 103 | 137 | 101 | 62 | 65 | 54 |
| Women | 66 | 94 | 82 | 19 | 27 | 25 |

Notes: Rates are based on a 1% sample of the population of England and Wales identified at the 1991 and 2001 censuses. The sample were followed up for mortality between 2002 and 2007. Rates for non-White ethnic groups are based on a small number of events and should be treated with caution. Ethnicity as defined in the 1991 and/or 2001 census.

Source: ONS Longitudinal Study (2009). Analysis of the ONS Longitudinal Study undertaken by Christopher Marshall, Centre for Longitudinal Study Information and User Support, December 2009.

The permission of the Office for National Statistics to use the Longitudinal Study is gratefully acknowledged, as is the help provided by staff at the Centre for Longitudinal Study Information & User Support (CeLSIUS). CeLSIUS is supported by the ESRC Census of Population Programme (Award Ref: RES-348-25-0004).

The authors alone are responsible for the interpretation of the data.

Census output is Crown copyright and is reproduced with the permission of the Controller of HMSO and the Queen's Printer for Scotland.

Table 1.4 Trends in CHD mortality rates per 100,000 by sex and country of birth, 30 to 69 years, 1979 to 2003, England and Wales

| | 1979-1983 | 1989-1993 | 1999-2003 |
|---------------------|-----------|-----------|-----------|
| MEN | | | |
| England and Wales | 342 | 240 | 133 |
| Jamaica | 154 | 130 | 107 |
| Other Carribean | 168 | 121 | 86 |
| West Africa | 260 | 155 | 83 |
| East Africa | 455 | 312 | 176 |
| India | 478 | 338 | 191 |
| Pakistan | 391 | 364 | 255 |
| Bangladesh | 466 | 404 | 579 |
| Scotland | 413 | 285 | 166 |
| Northern Ireland | 399 | 289 | 160 |
| Republic of Ireland | 405 | 303 | 192 |
| Italy | 231 | 160 | 106 |
| Spain | 210 | 160 | 98 |
| France | 289 | 192 | 140 |
| Poland | 400 | 301 | 261 |
| Hungary | 335 | 339 | 199 |
| WOMEN | | | |
| England and Wales | 98 | 75 | 39 |
| Jamaica | 62 | 66 | 48 |
| Other Carribean | 68 | 50 | 41 |
| East Africa | 123 | 56 | 56 |
| India | 154 | 129 | 72 |
| Pakistan | 111 | 101 | 96 |
| Scotland | 128 | 97 | 55 |
| Northern Ireland | 132 | 96 | 54 |
| Republic of Ireland | 117 | 91 | 52 |
| Italy | 84 | 57 | 37 |

Notes: Rates are adjusted to the Europe 2000 population. Countries included where numbers of deaths were sufficient for accurate rate estimation. See source for details.

Source: Harding S, Rosato M, Teyhan A (2008) Trends for coronary heart disease and stroke mortality among migrants in England and Wales, 1979-2003: slow declines notable for some groups. Heart, 94; 463-470.

Figure 1.4a Trends in CHD mortality in men, selected countries of birth, 1979 to 2003, England and Wales

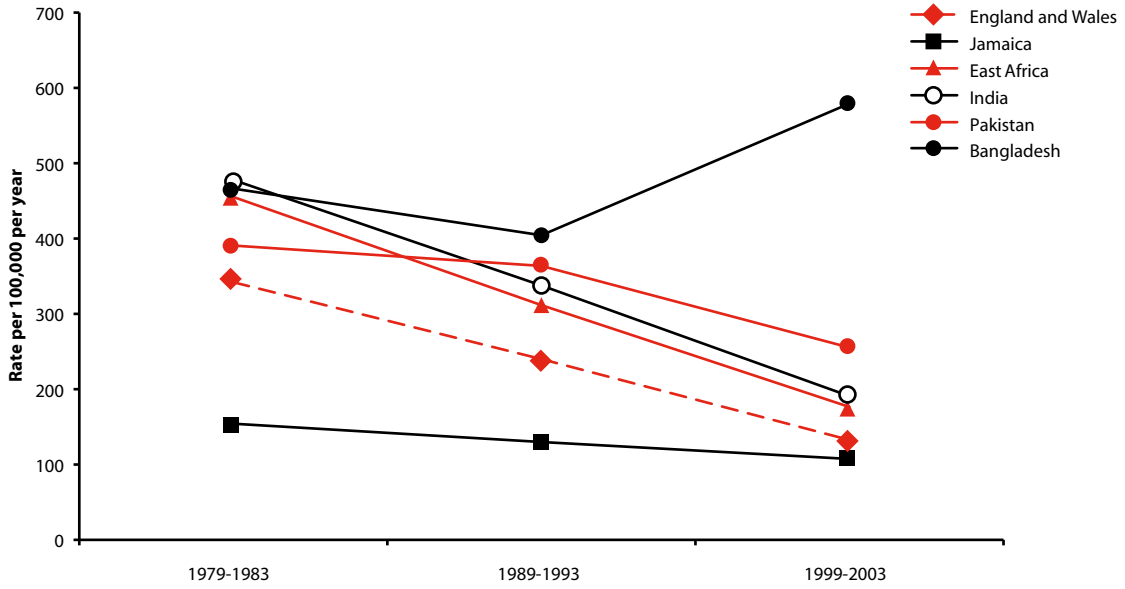


Figure 1.4b Trends in CHD mortality in women, selected countries of birth, 1979 to 2003, England and Wales

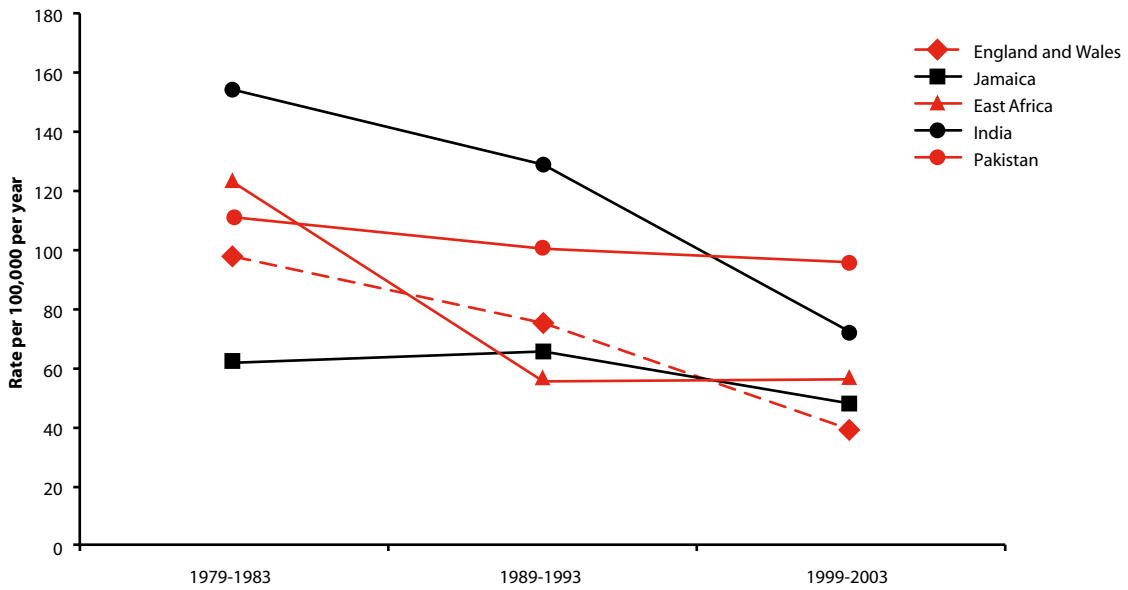


Table 1.5 Trends in stroke mortality rates per 100,000 by sex and country of birth, 30 to 69 years, 1979 to 2003, England and Wales

| | 1979-1983 | 1989-1993 | 1999-2003 |
|---------------------|-----------|-----------|-----------|
| MEN | | | |
| England and Wales | 59 | 39 | 27 |
| Jamaica | 113 | 76 | 51 |
| Other Carribean | 93 | 71 | 41 |
| West Africa | 131 | 112 | 71 |
| East Africa | | 45 | 36 |
| India | 97 | 55 | 35 |
| Pakistan | 59 | 64 | 42 |
| Bangladesh | 117 | 124 | 84 |
| Scotland | 66 | 49 | 35 |
| Northern Ireland | 76 | 49 | 35 |
| Republic of Ireland | 75 | 56 | 45 |
| Italy | 40 | 32 | 22 |
| WOMEN | | | |
| England and Wales | 46 | 30 | 21 |
| Jamaica | 109 | 60 | 37 |
| Other Carribean | 79 | 40 | 31 |
| East Africa | | 34 | 27 |
| India | 64 | 39 | 26 |
| Pakistan | | 47 | 35 |
| Scotland | 54 | 36 | 28 |
| Northern Ireland | 50 | 36 | 26 |
| Republic of Ireland | 57 | 38 | 26 |
| Italy | 36 | 26 | 19 |

Notes: Rates are adjusted to the Europe 2000 population. Countries included where numbers of deaths were sufficient for accurate rate estimation. See source for details.

Source: Harding S, Rosato M, Teyhan A (2008) Trends for coronary heart disease and stroke mortality among migrants in England and Wales, 1979-2003: slow declines notable for some groups. *Heart*, 94; 463-470.

Table 1.6 *Percentage of hospital admissions for myocardial infarction and stroke that resulted in fatality within 30 days and within a year by ethnic group, 2003/05, England*

| Days | White | | Asian | | Black | | Other | | Not stated | |
|-------------------------|--------|----------|-------|----------|-------|----------|-------|----------|------------|----------|
| | MI % | Stroke % | MI % | Stroke % | MI % | Stroke % | MI % | Stroke % | MI % | Stroke % |
| 0 to 30 | 14 | 20 | 8 | 14 | 8 | 11 | 10 | 14 | 15 | 23 |
| 0 to 365 | 24 | 33 | 13 | 23 | 16 | 21 | 15 | 24 | 22 | 35 |
| <i>Number of events</i> | | | | | | | | | | |
| 0 to 30 | 6,732 | 12,187 | 157 | 220 | 25 | 117 | 50 | 96 | 3,113 | 6,290 |
| 0 to 365 | 11,293 | 20,738 | 243 | 365 | 51 | 218 | 74 | 161 | 4,681 | 9,428 |

Notes: Results only include patients who were admitted to an NHS hospital in England with either myocardial infarction or stroke (i.e. mortality before hospitalisation is not included). Results for both sexes have been combined due to low number of events in some ethnic groups. Results are not age-standardised. 'Total' refers to mortality at any time during the first year after hospital admission.

Source: Unit of Healthcare Epidemiology (2010). Analysis of linked hospital episode statistics and mortality dataset. Personal communication.

Table 1.7 Incidence rate per 1,000 for acute myocardial infarction by sex and age, South Asians compared to non-South Asians, 2001/03, Scotland

| | 25-34 | 35-44 | 45-54 | 55-64 | 65-74 | 75-84 | 85+ | Age-standardised rate |
|-------------------------|-------|-------|-------|-------|-------|-------|-------|-----------------------|
| South Asians | | | | | | | | |
| Men | 0.0 | 1.6 | 2.6 | 6.4 | 15.3 | 42.6 | 26.8 | 7.7 |
| Women | 0.0 | 0.3 | 1.4 | 3.5 | 8.4 | 24.2 | 42.9 | 4.9 |
| <i>Number of events</i> | | | | | | | | |
| Men | 0 | 11 | 12 | 20 | 27 | 16 | 2 | 88 |
| Women | 0 | 2 | 6 | 8 | 10 | 8 | 4 | 38 |
| Non-South Asians | | | | | | | | |
| Men | 0.1 | 0.7 | 2.4 | 5.4 | 10.3 | 18.8 | 31.1 | 5.0 |
| Women | 0.0 | 0.2 | 0.7 | 2.0 | 5.1 | 11.3 | 21.9 | 2.6 |
| <i>Number of events</i> | | | | | | | | |
| Men | 86 | 609 | 1,948 | 3,525 | 5,091 | 4,726 | 1,710 | 17,696 |
| Women | 29 | 199 | 584 | 1,408 | 3,043 | 4,605 | 3,406 | 13,276 |

Notes: New cases of AMI were identified from the hospital discharge diagnosis and the underlying cause of death on a death certificate (ICD-10 codes I21 or I22 and ICD-9 code 410). With regards to discharge diagnoses, a first AMI was defined as the first admission for AMI based on no hospital admission for AMI in the preceding 10 years. "Non-South Asians" refers to everyone in the general population who does not identify with the South Asian ethnic group.

Source: Fischbacher CM, Bhopal R, Povey C, Steiner M, Chalmers J, Mueller G, Jamieson J, Knowles D (2007). Record linked retrospective cohort study of 4.6 million people exploring ethnic variations in disease: myocardial infarction in South Asians. *BMC Public Health*, 7:142.

Table 1.8 *Percentage alive at 30 days, 90 days and 180 days after acute myocardial infarction admission, by sex, South Asians compared to non-South Asians, 2001/03, Scotland*

| | | Non-South Asians | South Asians |
|--------------|-------|------------------|--------------|
| | | % | % |
| 30 days | Men | 56 | 73 |
| | Women | 47 | 71 |
| 90 days | Men | 53 | 71 |
| | Women | 43 | 70 |
| 180 days | Men | 50 | 70 |
| | Women | 39 | 68 |
| <i>Bases</i> | | | |
| 30 days | Men | 17,257 | 88 |
| | Women | 12,974 | 34 |
| 90 days | Men | 16,473 | 85 |
| | Women | 12,415 | 33 |
| 180 days | Men | 15,476 | 83 |
| | Women | 1,773 | 31 |

Source: Fischbacher CM, Bhopal R, Povey C, Steiner M, Chalmers J, Mueller G, Jamieson J, Knowles D (2007). Record linked retrospective cohort study of 4.6 million people exploring ethnic variations in disease: myocardial infarction in South Asians. *BMC Public Health*, 7:142.

Figure 1.8 *Percentage alive at 30 days after acute myocardial infarction admission, by sex, South Asians compared to non-South Asians, 2001/03, Scotland*

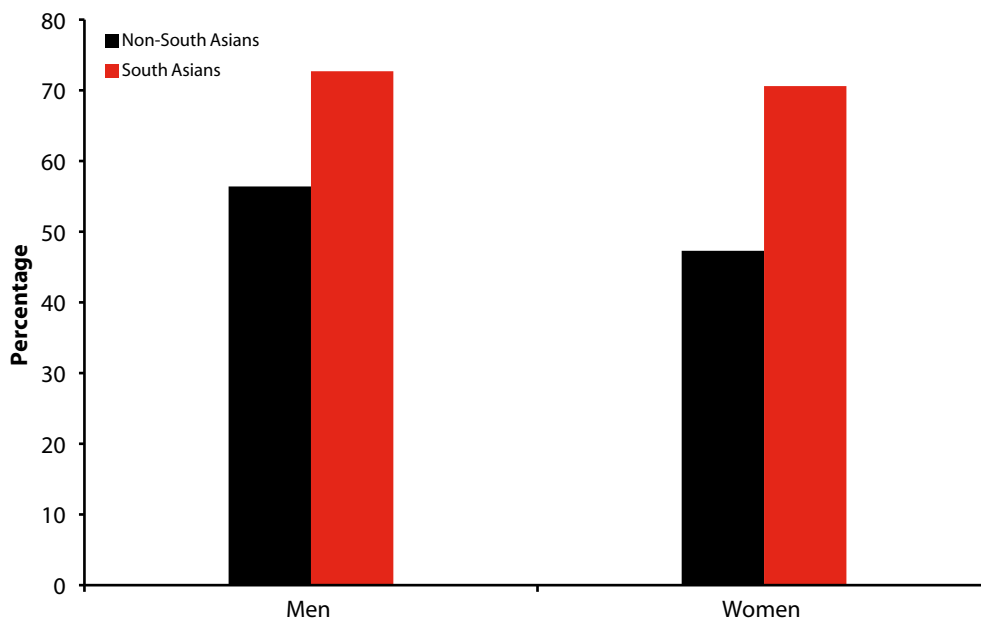


Table 1.9 Incidence rate per 100,000 of stroke by sex and ethnic group, 1995 to 2004, South London

| | 1995-1996 | 1997-1998 | 1999-2000 | 2001-2002 | 2003-2004 |
|--------------|-----------|-----------|-----------|-----------|-----------|
| MEN | | | | | |
| White | 148 | 160 | 126 | 137 | 112 |
| Black | 186 | 221 | 169 | 147 | 154 |
| Other | 177 | 174 | 187 | 158 | 199 |
| WOMEN | | | | | |
| White | 114 | 105 | 81 | 98 | 83 |
| Black | 178 | 132 | 124 | 128 | 85 |
| Other | 74 | 180 | 179 | 84 | 112 |

Notes: Rates are adjusted to the European Standard Population.

Source: Heuschman P U, Grieve A P, Toshke A M, Rudd A G, Wolfe C D A (2008). Ethnic group disparities in 10-year stroke trends in stroke incidence and vascular risk factors: The South London Stroke Register (SLSR). *Stroke*, 39; 2204-2210.

Figure 1.9a Incidence of stroke in men by ethnic group, 1995 to 2004, South London

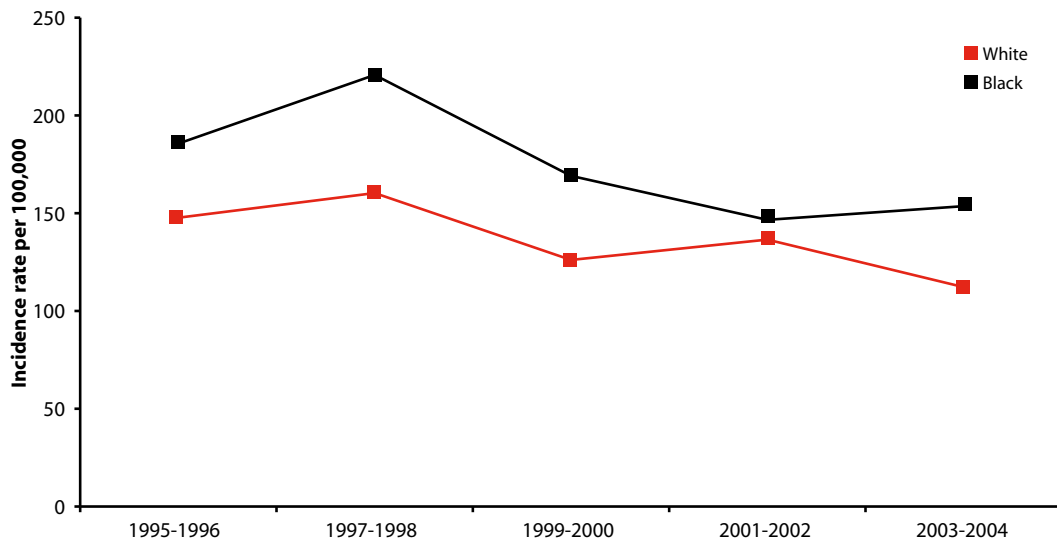


Figure 1.9b Incidence of stroke in women by ethnic group, 1995 to 2004, South London

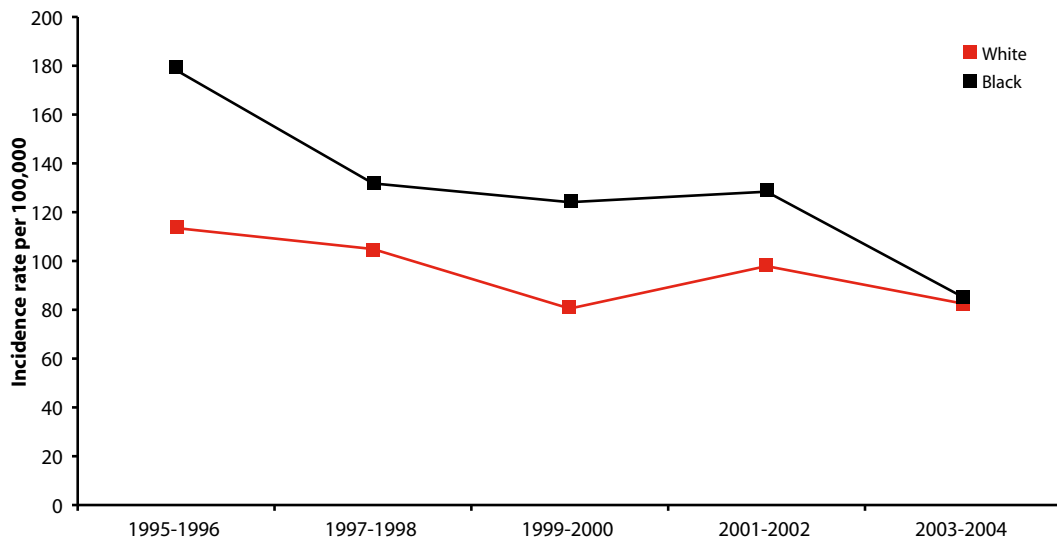


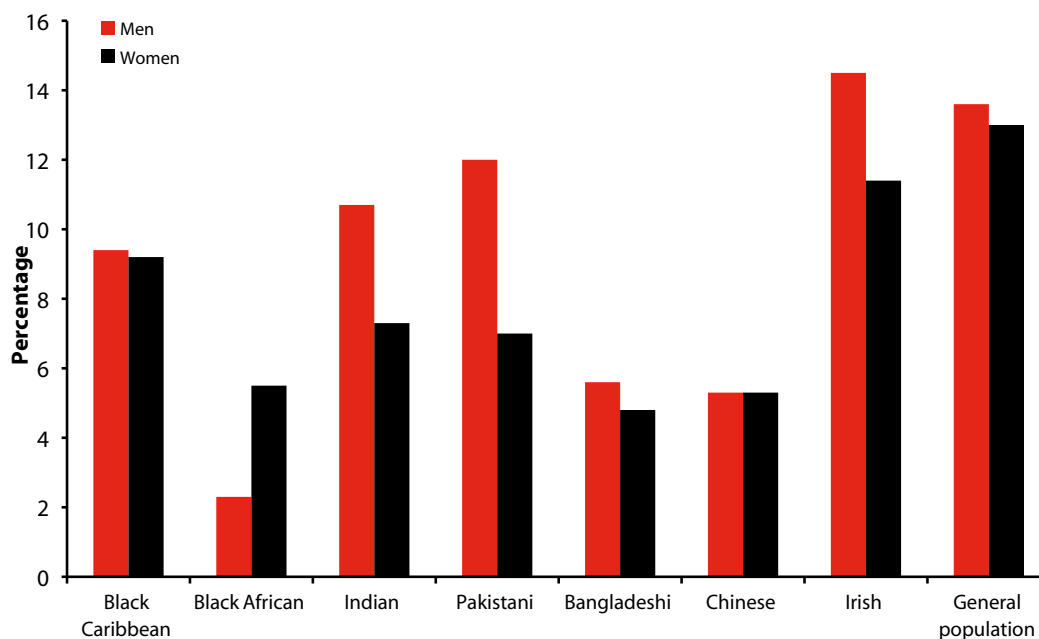
Table 1.10 Prevalence of CVD and CHD by sex, age and ethnic group, 2004, England

| | MEN | | | | WOMEN | | | |
|---------------------------|------------|------------|----------|---------------|------------|------------|----------|---------------|
| | 16-34 % | 35-54 % | 55+ % | All ages % | 16-34 % | 35-54 % | 55+ % | All ages % |
| CVD | | | | | | | | |
| Black Caribbean | 3 | 4 | 23 | 9 | 4 | 9 | 17 | 9 |
| Black African | 2 | 1 | 5 | 2 | 3 | 6 | 21 | 6 |
| Indian | 4 | 7 | 31 | 11 | 2 | 5 | 24 | 7 |
| Pakistani | 3 | 11 | 42 | 12 | 3 | 8 | 22 | 7 |
| Bangladeshi | | 8 | 24 | 6 | 1 | 8 | 21 | 5 |
| Chinese | 1 | 4 | 20 | 5 | 2 | 6 | 15 | 5 |
| Irish | 9 | 8 | 24 | 15 | 5 | 8 | 20 | 11 |
| General population | 5 | 8 | 29 | 14 | 5 | 9 | 24 | 13 |
| CHD | | | | | | | | |
| Black Caribbean | | 2 | 13 | 4 | 0 | 2 | 6 | 2 |
| Black African | 0 | | 5 | 1 | 0 | 1 | | 1 |
| Indian | | 3 | 24 | 6 | | 2 | 15 | 3 |
| Pakistani | | 8 | 35 | 8 | 1 | 2 | 14 | 3 |
| Bangladeshi | | 6 | 18 | 4 | | 3 | 13 | 2 |
| Chinese | | 1 | 7 | 2 | | 0 | 8 | 1 |
| Irish | 0 | 3 | 12 | 6 | | 1 | 7 | 3 |
| General population | | 2 | 18 | 6 | 0 | 1 | 11 | 4 |
| <i>Bases (unweighted)</i> | | | | | | | | |
| Black Caribbean | 122 | 167 | 125 | 414 | 200 | 291 | 162 | 653 |
| Black African | 179 | 172 | 39 | 390 | 235 | 190 | 44 | 469 |
| Indian | 201 | 231 | 118 | 550 | 240 | 275 | 119 | 634 |
| Pakistani | 222 | 146 | 65 | 433 | 279 | 164 | 65 | 508 |
| Bangladeshi | 212 | 150 | 49 | 411 | 310 | 118 | 50 | 478 |
| Chinese | 172 | 118 | 58 | 348 | 148 | 176 | 51 | 375 |
| Irish | 114 | 194 | 189 | 497 | 149 | 275 | 232 | 656 |
| General population | 1,771 | 2,364 | 2,467 | 6,602 | 2,175 | 2,897 | 3,162 | 8,234 |

Notes: General population data is from 2003. Blank cells indicate too few respondents for accurate estimate.

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Figure 1.10 Prevalence of CVD by sex and ethnic group, 2004, England



2. Treatment and rehabilitation

This chapter reports on treatment and rehabilitation for cardiovascular disease (CVD) experienced by different ethnic groups. There are no specific government targets regarding ethnic inequalities in access to treatment, but since the introduction of the Race Relations (Amendment) Act in 2000, public bodies – including the National Health Service and the Department of Health – have had a statutory duty to actively promote race equality, including within service delivery¹.

Until recently, regular recording of ethnic data in the National Health Service (NHS) was either inconsistent or not practiced. Since 2001, it has been a requirement to ethnically code all admissions to NHS hospitals using the same coding system that was applied in the 2001 census – however, compliance with this requirement has not been uniform. In 2002/03, over 30% of all hospital admissions in England were not coded for ethnicity, but by 2007/08 this had dropped to less than 15%². This difficulty means that good quality national-level trend data in ethnic inequalities in access to treatment and rehabilitation for CVD are not available. All of the national-level data presented in this chapter are from the most recent available data, when the quality of ethnic coding was at its highest. Other data presented in this chapter come from individual studies conducted on sub-national populations, where ethnic coding could be regulated.

Hospital inpatient cases

Comparing the number of inpatient cases for CVD between ethnic groups in England is complicated as the size of the population of each ethnic group varies. Because of the large number of inpatient cases where ethnic group was not verified, applying the number of cases to the total population to produce comparable rates is not straight forward³. It is possible to calculate the proportion of all inpatient cases that were due to CVD, and compare these proportions between ethnic groups, but again these comparisons must be made with caution. Differences between ethnic groups may be due to genuine differences between the level of service required for CVD (the numerator of the proportion), differences in the level of service required for other diseases (part of the denominator of the proportion), or both. This approach shows that CVD makes up a greater percentage of inpatient cases for the White ethnic group than for any other ethnic group. In 2007/08, 11% of all inpatient cases for White men were for CVD, and 7% of inpatient cases for White women were for CVD. In comparison, CVD made up only 7% of inpatient cases for Black and Chinese men, 3% for Black women and 4% for Chinese women. Similarly, the proportion of inpatient cases for coronary heart disease (CHD) was highest in the White ethnic group, with the exception of Asian men where 6% of all inpatient cases were for CHD compared to 4% in White men (Tables 2.1a and 2.1b).

Revascularisations

Calculation of revascularisation rates by ethnic group is not straight forward, for similar reasons to the difficulties in calculating inpatient case rates for CVD by ethnic group. The rates reported in this chapter have been age-standardised against the number of inpatient cases for CHD by ethnic group, thus

enabling calculation of revascularisation rates for the cases where ethnicity was not recorded. In English NHS hospitals in 2007/08, the rate of both coronary artery bypass grafts (CABGs) and percutaneous coronary interventions (PCIs) was higher in the White ethnic group than in both the Black and Asian ethnic groups (Table 2.2 and Figure 2.2). A similar comparison restricted to London NHS hospitals in 2002/03 suggested similar results – that revascularisation rates were generally lower in the Black and Asian ethnic groups than in White ethnic groups (Table 2.3). In each of these instances, the number of events in the non-White ethnic groups was often low, so the result should be treated with caution.

The revascularisation rates reported in tables 2.2 and 2.3 have been age-standardised to take account of the differing age structure of the different ethnic groups. However, they have not taken account of differences in cardiovascular risk factor status of the patients or severity of the condition when the patients presented to hospital. A comparison between revascularisation rates in South Asian and White men and women conducted in the mid 1990s in Leicestershire was standardised by the need for revascularisation, assessed in each case by a panel of nine experts with access to medical records and data on risk factor status of the patients but blind to the ethnicity of the patients. The results suggested that, after adjustment for need, angioplasty rates were about 30% lower in South Asians than in White people, and CABG rates were around 25% lower (although the difference in angioplasty rates was not statistically significant) (Table 2.5).

Rehabilitation

Rehabilitation programmes for individuals with CVD are monitored by the National Audit of Cardiac Rehabilitation. In 2007 there were 374 cardiac rehabilitation programmes running in the UK. The large majority of individuals referred to these programmes had either had a heart attack or revascularisation. One of the aims of the British Heart Foundation's National Campaign for Cardiac Rehabilitation is to ensure that rehabilitation programmes meet the needs of under-represented groups, including ethnic minorities. At present, it seems that very few people from ethnic minority groups are currently attending cardiac rehabilitation programmes – studies will be conducted in the coming years to explore the reasons for these ethnic differences⁴.

National data are currently available on ethnic differences in the prescription of aspirin, beta blockers and lipid-regulating drugs (statins) at hospital discharge after a heart attack. These data show that in English and Welsh NHS hospitals in 2008, the rate of prescriptions of each of these drugs was well above the target of 80% (set by the National Service Framework for Coronary Heart Disease in 2001⁵) for each ethnic group. There were no ethnic differences in prescribing of either statins or aspirin. However, there were some small differences in prescribing rates for beta blockers, with highest rates prescribed in Asian patients (97%) and lowest in patients with mixed ethnicity (90%). These differences should be treated with caution as they are based on a low number of patients (Table 2.4).

Two studies from Leicestershire have explored differences in outcome after revascularisation procedures for White and South Asian patients. Both studies found that there was a small raised risk (about 10%) of cardiovascular mortality following revascularisation in South Asian patients, however these differences were not statistically significant. Both studies did find a significantly higher risk (about 25%) in South Asians for complications after revascularisation and for readmission to hospital after 30 days (Tables 2.6 and 2.7).

1. Fox C (2004) *Heart Disease and South Asians*. NHS and British Heart Foundation: London.
2. HESonline (2009) *How good is HES ethnic coding and where do the problems lie? The Information Centre: Leeds*. Available at www.hesonline.nhs.uk
3. *The actual number of inpatient cases for each condition by ethnic group is unknown, since the ethnic group is not recorded in all cases. Therefore, using the recorded number of cases as the numerator in a calculation of rates would result in an underestimate of the actual underlying rate for each ethnic group. It is unlikely that this bias will affect all ethnic groups equally, and it is not possible to adequately adjust for this bias.*
4. National Audit of Cardiac Rehabilitation team, University of York (2008) *The National Audit of Cardiac Rehabilitation Annual Statistical Report 2008*. British Heart Foundation: London.
5. Department of Health (2001) *National Service Framework for Coronary Heart Disease*. Department of Health: London.

Table 2.1a Inpatient cases by main diagnosis and ethnic group, men, National Health Service hospitals, 2007/08, England

| | White | Mixed | Asian | Black | Chinese | Other | Unknown |
|----------------------------------------------------|-----------|--------|---------|---------|---------|--------|---------|
| All diagnoses | 5,196,239 | 51,288 | 280,929 | 144,156 | 13,424 | 83,562 | 956,042 |
| All diseases of the circulatory system (I00-I99) | 575,774 | 2,588 | 28,604 | 9,628 | 1,002 | 6,524 | 91,080 |
| Coronary heart disease (I20-I25) | 216,061 | 933 | 15,992 | 2,323 | 278 | 2,744 | 36,738 |
| Angina (I20) | 55,147 | 231 | 4,250 | 784 | 59 | 776 | 6,830 |
| Acute myocardial infarction (I21) | 54,386 | 186 | 3,118 | 461 | 64 | 603 | 8,580 |
| Heart failure (I50) | 45,283 | 152 | 2,059 | 973 | 49 | 394 | 4,418 |
| Stroke (I60-I69) | 70,188 | 273 | 2,681 | 1,631 | 133 | 804 | 10,662 |
| Diabetes (E10-E14) | 32,540 | 277 | 1,896 | 1,617 | 59 | 485 | 5,270 |
| Obesity (E66) | 1,031 | 11 | 79 | 29 | * | 31 | 336 |
| All cancer (C00-D48) | 640,163 | 2,634 | 14,774 | 10,203 | 1,373 | 6,256 | 97,381 |
| Colo-rectal cancer (C18-C21) | 77,400 | 137 | 1,077 | 897 | 153 | 382 | 10,217 |
| Lung cancer (C33-C34) | 49,302 | 127 | 774 | 501 | 125 | 410 | 7,602 |
| Breast cancer (C50) | 1,526 | 12 | 46 | 20 | * | 68 | 233 |
| Bladder cancer (C67) | 57,404 | 134 | 734 | 329 | 67 | 311 | 6,363 |
| All diseases of the nervous system (G00-G99) | 118,548 | 1,056 | 5,432 | 3,014 | 200 | 1,533 | 19,916 |
| All diseases of the respiratory system (J00-J99) | 387,676 | 4,309 | 24,850 | 9,726 | 873 | 6,069 | 57,471 |
| All diseases of the digestive system (K00-K93) | 653,231 | 5,097 | 33,782 | 15,623 | 1,941 | 9,843 | 129,368 |
| All diseases of the genitourinary system (N00-N99) | 291,418 | 2,544 | 16,409 | 8,420 | 808 | 4,539 | 51,061 |
| Injury and poisoning (V00-Y98) | 408,601 | 4,427 | 17,435 | 10,001 | 873 | 8,057 | 77,945 |
| All other diagnoses | 2,087,257 | 28,345 | 137,668 | 75,895 | 6,295 | 40,225 | 426,214 |

Notes: Ordinary admissions and day cases combined. ICD codes (10th revision) in parentheses. Ethnicity data on HES should be used with care and may not yet be robust enough to support analysis of ethnic differences. Patients are asked to select their category from a standard list, and some decline to do this. The counts are of finished consultant episodes (FCEs), defined as a continuous period of admitted patient care under one consultant within one healthcare provider. Please note that the figures do not represent the number of different patients, as a person may have more than one episode of care within the same stay in hospital or in different stays in the same year. Patients where data on sex are not available have been excluded. Low counts have been replaced by an asterisk, and are not included in 'all diagnoses'.

Source: Hospital Episode Statistics (2009). Information Centre for Health and Social Care. Personal Communication. Copyright © 2009, Re-used with the permission of The Health and Social Care Information Centre. All rights reserved.

Table 2.1b Inpatient cases by main diagnosis and ethnic group, women, National Health Service hospitals, 2007/08, England

| | White | Mixed | Asian | Black | Chinese | Other | Unknown |
|----------------------------------------------------|-----------|--------|---------|---------|---------|---------|-----------|
| All diagnoses | 6,600,276 | 71,877 | 417,839 | 246,725 | 22,682 | 113,915 | 1,157,061 |
| All diseases of the circulatory system (I00-I99) | 459,116 | 1,861 | 17,173 | 8,280 | 906 | 4,499 | 67,557 |
| Coronary heart disease (I20-I25) | 121,364 | 468 | 6,974 | 1,510 | 159 | 1,348 | 17,324 |
| Angina (I20) | 41,722 | 139 | 2,575 | 621 | 51 | 485 | 4,699 |
| Acute myocardial infarction (I21) | 34,621 | 84 | 1,327 | 266 | 32 | 323 | 4,752 |
| Heart failure (I50) | 43,270 | 107 | 1,743 | 928 | 38 | 328 | 4,632 |
| Stroke (I60-I69) | 77,522 | 301 | 1,808 | 1,307 | 173 | 628 | 11,876 |
| Diabetes (E10-E14) | 26,799 | 307 | 1,470 | 1,304 | 52 | 341 | 3,674 |
| Obesity (E66) | 2,486 | 56 | 79 | 152 | * | 69 | 973 |
| All cancer (C00-D48) | 658,979 | 3,428 | 17,088 | 15,314 | 1,783 | 7,442 | 110,045 |
| Colo-rectal cancer (C18-C21) | 54,917 | 122 | 712 | 841 | 118 | 458 | 7,633 |
| Lung cancer (C33-C34) | 35,409 | 72 | 329 | 185 | 81 | 238 | 5,252 |
| Breast cancer (C50) | 133,615 | 577 | 3,953 | 2,766 | 330 | 1,347 | 24,020 |
| Bladder cancer (C67) | 17,855 | 44 | 131 | 102 | 11 | 85 | 2,014 |
| All diseases of the nervous system (G00-G99) | 134,588 | 1,040 | 5,117 | 3,601 | 227 | 1,593 | 22,708 |
| All diseases of the respiratory system (J00-J99) | 376,457 | 3,440 | 19,287 | 8,773 | 703 | 4,700 | 51,125 |
| All diseases of the digestive system (K00-K93) | 693,849 | 5,220 | 29,836 | 17,617 | 1,875 | 8,486 | 118,726 |
| All diseases of the genitourinary system (N00-N99) | 444,111 | 3,653 | 23,741 | 14,003 | 1,510 | 7,723 | 77,955 |
| Injury and poisoning (V00-Y98) | 413,135 | 3,000 | 11,531 | 6,916 | 711 | 4,904 | 63,077 |
| All other diagnoses | 3,390,756 | 49,872 | 292,517 | 170,765 | 14,915 | 74,158 | 641,221 |

Notes: Ordinary admissions and day cases combined. ICD codes (10th revision) in parentheses. Ethnicity data on HES should be used with care and may not yet be robust enough to support analysis of ethnic differences. Patients are asked to select their category from a standard list, and some decline to do this. The counts are of finished consultant episodes (FCEs), defined as a continuous period of admitted patient care under one consultant within one healthcare provider. Please note that the figures do not represent the number of different patients, as a person may have more than one episode of care within the same stay in hospital or in different stays in the same year. Patients where data on sex are not available have been excluded. Low counts have been replaced by an asterisk, and are not included in 'all diagnoses'.

Source: Hospital Episode Statistics (2009). Information Centre for Health and Social Care. Personal Communication. Copyright © 2009, Re-used with the permission of The Health and Social Care Information Centre. All rights reserved.

Table 2.2 CABG, PCI and all revascularisations age-standardised procedure rate per 100,000 inpatient cases for CHD by ethnic group, National Health Service hospitals, 2007/08, England

| | White | Asian | Black | Other | Unknown |
|---------------------------------------------|--------|-------|-------|--------|---------|
| Coronary Artery Bypass Graft (K40-46) | 7,543 | 3,455 | 2,134 | 3,521 | 3,910 |
| Percutaneous Coronary Intervention (K49-50) | 2,749 | 896 | 675 | 9,228 | 2,077 |
| All revascularisations (CABGs & PCIs) | 10,292 | 4,351 | 2,809 | 12,749 | 5,986 |
| <i>Number of events:</i> | | | | | |
| CABGs | 18,425 | 1,237 | 149 | 366 | 3,311 |
| PCIs | 3,448 | 246 | 38 | 80 | 1,302 |
| All revascularisations | 21,873 | 1,483 | 187 | 446 | 4,613 |

Notes: OPCS-4 codes in brackets. Data are based on main procedures, which is the first recorded procedure or intervention in the Hospital Episode Statistics (HES) data set and is usually the most resource intensive procedure or intervention performed during the episode. Procedures where the age of the patient was not known have not been included. 'Other' includes Chinese and Mixed ethnic groups, as numbers in these groups were too low for individual analyses.

Source: Hospital Episode Statistics (2009). Information Centre for Health and Social Care. Personal Communication. Copyright © 2009, Re-used with the permission of The Health and Social Care Information Centre. All rights reserved.

Figure 2.2 CABG, PCI and all revascularisations age-standardised procedure rate per 100,000 inpatient cases for CHD by ethnic group, National Health Service hospitals, 2007/08, England

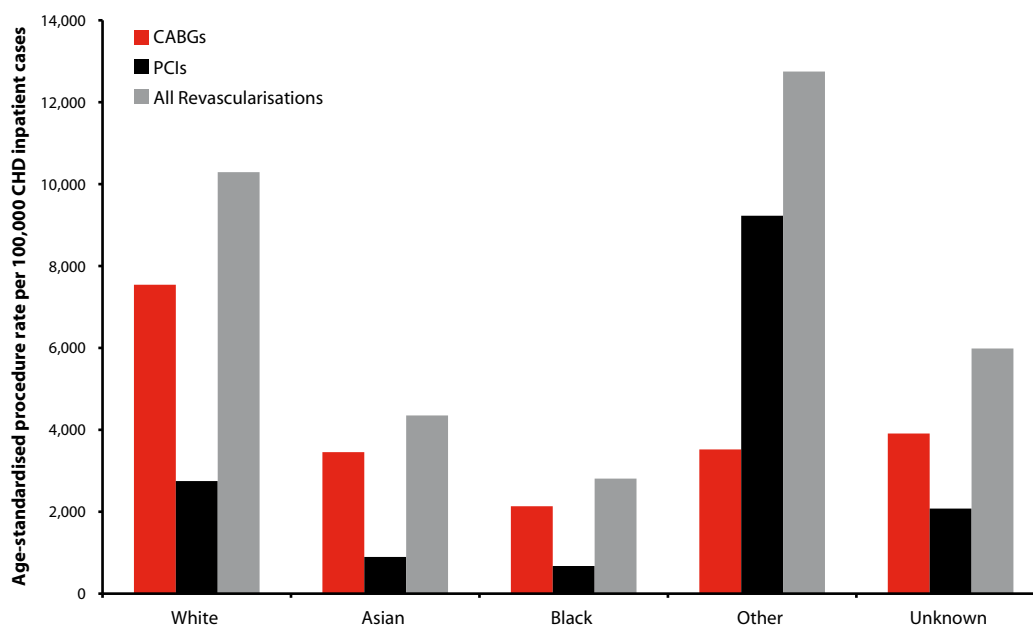


Table 2.3 *Revascularisation age-standardised rate per 100,000 after adjustment for CHD admissions by ethnic group, National Health Service hospitals, 2002/03, London*

| | Observed Events | Age-standardised Rate |
|-------------------------|-----------------|-----------------------|
| White British | 3,724 | 103 |
| White Irish | 281 | 120 |
| Other White | 689 | 108 |
| White & Black Caribbean | 22 | 111 |
| White & Black African | 14 | 115 |
| White & Asian | 20 | 101 |
| Other Mixed | 46 | 146 |
| Indian | 690 | 106 |
| Pakistani | 232 | 94 |
| Bangladeshi | 185 | 63 |
| Other Asian | 203 | 108 |
| Black Caribbean | 134 | 81 |
| Black African | 71 | 93 |
| Other Black | 42 | 96 |
| Chinese | 12 | 105 |
| Other Ethnic Group | 302 | 112 |
| Not Stated | 1,830 | 105 |
| TOTAL | 9,176 | 100 |

Notes: Rate is directly standardised by age and sex to the London population. Rate is adjusted for CHD admissions by calculating proportional admissions ratios for revascularisations as compared to all CHD admissions. Figures greater than 100 indicate that revascularisation is more likely than the general population after accounting for number of CHD admissions within that ethnic group, and vice versa. See source for details. Revascularisations are defined as PCI operations (OPCS-4 codes K49-K50) and CABG operations (OPCS-4 codes K40-K46).

Source: Mindell J, Klodowski E, Fitzpatrick J (2005). Using routine data to measure ethnic differentials in access to revascularisation in London. A technical report. London Health Observatory: London.

Table 2.4 *Prescription of aspirins, beta blockers and statins after hospital admission for heart attack by ethnic group, 2008, England and Wales*

| | Discharged with secondary prevention medication of aspirin | Discharged with secondary prevention medication of beta blockers | Discharged with secondary prevention medication of statins | Number of patients |
|--------------------------------|------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------|--------------------|
| <i>Percentage of patients:</i> | | | | |
| White | 98 | 94 | 97 | 38,703 |
| Mixed | 98 | 90 | 96 | 83 |
| Asian | 99 | 97 | 98 | 747 |
| Black | 97 | 93 | 96 | 223 |
| Other | 98 | 95 | 98 | 394 |
| Not known/Stated | 98 | 91 | 96 | 4,000 |
| <i>Target:</i> | 80 | 80 | 80 | |

Notes: Ethnic groups are combined as follows: WHITE – British (White), Irish (White), Any other White background; MIXED – White and Black Caribbean, White and Black African, White and Asian; ASIAN – Indian, Pakistani, Bangladeshi, Any other Asian background; BLACK – Caribbean, African, Any other Black background; OTHER – Chinese, any other ethnic group; NOT KNOWN / NOT STATED – Ethnic group not recorded in hospital entry.

Source: Royal College of Physicians (2007) Myocardial Infarction National Audit Project. How the NHS manages heart attacks. Personal communication.

Table 2.5 *Comparison of revascularisations between South Asian and White adults after adjustment for need, 1996/97, London*

| | Standardised rate of angioplasty in those deemed appropriate for angioplasty | Standardised rate of CABG in those deemed appropriate for CABG |
|-----------------------|------------------------------------------------------------------------------|----------------------------------------------------------------|
| Bangladeshi | 23 | 56 |
| Pakistani | 34 | 78 * |
| Indian | 122 * | 89 * |
| South Asians combined | 69 * | 74 |
| White | 100 | 100 |

Notes: Prospective study of 502 South Asian and 2,974 White patients after coronary angiography, followed up for five years. Appropriateness for revascularisation procedures was independently assessed by a nine-member expert panel with access to medical notes and questionnaire responses, but without access to ethnicity data. Rate is directly age and sex standardised to the rate observed in the White patients. Results marked with an asterisk indicate that the rate was not statistically different from rate in White patients ($p < 0.05$). Data collected in single tertiary cardiac centre in London. See source for details.

Source: Feder G, Crook A, Magee P, Banerjee S, Timmis A, Hemingway H (2002) Ethnic differences in invasive management of coronary disease: prospective cohort study of patients undergoing angiography. *BMJ*, 324: 511-516.

Table 2.6 *Comparison of short-term fatality, long-term fatality and complications after CABG between South Asian and White adults, 1999/2004, Leicester*

| | Odds ratio for 30-day mortality after CABG | Odds ratio for 6-month mortality after CABG | Odds ratio for 30-day complications after CABG | Base |
|-------------|--------------------------------------------|---------------------------------------------|------------------------------------------------|-------|
| South Asian | 1.07 * | 1.10 * | 1.28 | 650 |
| White | 1.00 | 1.00 | 1.00 | 7,226 |

Notes: Retrospective analysis of White and South Asian patients undergoing first CABG over five years. Complications include reoperative bleeding, pulmonary oedema, pulmonary effusion, pneumothorax, renal failure, renal impairment, dialysis, urinary retention, neuropraxia, temporary / permanent stroke, delirium, limb ischaemia, arrhythmias, postoperative myocardial infarction, sternal wound infection, leg wound infection, pyrexia and pneumonia. Odds ratio indicates the chance of outcome in comparison with White adults – odds ratio of 1.28 indicates a 28% greater chance. Results are adjusted for baseline measures of risk – see source for details. Results marked with an asterisk indicate that the difference between South Asian and White adults was not statistically significant ($p < 0.05$).

Source: Elabi M, Chetty G, Matata B (2006) Ethnic differences in the management of coronary heart disease patients: lessons to be learned in Indo-Asians. *Medical Principles and Practice*, 15: 69-73.

Table 2.7 *Comparison of all cause mortality, cardiovascular mortality, repeat procedure, readmission and major cardiovascular events after revascularisation between South Asian and White adults, 1995/2004, Leicestershire*

| | Rate ratio for all cause mortality | Rate ratio for cardiovascular mortality | Rate ratio for readmission to hospital after 30-day postoperative period | Rate ratio for repeat revascularisation | Rate ratio for major cardiovascular events | Base |
|-------------|------------------------------------|-----------------------------------------|--------------------------------------------------------------------------|-----------------------------------------|--------------------------------------------|-------|
| South Asian | 0.95 * | 1.09 * | 1.23 | 1.22 * | 1.13 * | 660 |
| White | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 5,207 |

Notes: Retrospective cohort analysis of all patients resident in Leicestershire undergoing first-time CABG or PCI between 1995/96 and 2003/04. Results are adjusted for age, sex, year of revascularisation, co-morbidities, deprivation and type of admission. Rate ratio indicates the outcome rate in comparison with White adults – rate ratio of 1.23 indicates a 23% higher rate. Results marked with an asterisk indicate that the difference between South Asian adults and White adults was not statistically significant ($p < 0.05$).

Source: Blackledge H, Squire I (2009) Improving long-term outcomes following coronary artery bypass graft or percutaneous coronary revascularisation: results from a large, population-based cohort with first intervention 1995–2004. *Heart*, 95; 304–311.

3. Risk Factors

Modifiable risk factors for cardiovascular disease (CVD) – those resulting from lifestyle choices – include smoking, diet, physical activity, alcohol consumption, blood pressure, blood cholesterol levels, obesity and diabetes. This chapter reports on ethnic differences in the experience of these risk factors. Risk factors for CVD vary between different ethnic groups. However, these differences in risk factors fail to fully account for the ethnic variations in the burden of CVD – it is currently being debated whether socioeconomic factors also play a part¹. Much of the evidence on ethnic differences in risk factors comes from the most recent Health Survey for England with a focus on minority ethnic groups, which was conducted in 2004².

Smoking

In 2004, around a quarter of both men and women (24% of men and 23% of women) aged over 16 in England reported regular consumption of cigarettes. The prevalence of smoking ranged from 20% in Indian men to 40% in Bangladeshi men. There was much more ethnic variation in smoking levels for women, where smoking is very uncommon in the South Asian ethnic groups (5% or less for Indian, Pakistani and Bangladeshi women), but smoking levels in Irish and Black Caribbean women were similar to levels in men (Table 3.1 and Figure 3.1). There does not appear to be much ethnic variation in the ability to give up smoking – in 2007/08 around a half of people attending NHS stop smoking services had successfully quit smoking after four weeks, ranging from 45% in the Black ethnic group to 52% in the Mixed ethnic group (Table 3.3).

Focusing only on cigarettes can underestimate the tobacco consumption of different ethnic groups, sometimes dramatically. For example, whilst only 2% of Bangladeshi women smoked cigarettes in 2004, 17% consumed tobacco (mainly via chewing tobacco) (Table 3.2).

Diet

Data on ethnic variations in diet in the UK are collected by the Health Survey for England² and the Family Food Survey³ conducted annually by the Department for the Environment, Food and Rural Affairs. The Health Survey for England suggests that all ethnic groups in England (with the exception of the Irish) consume more fruit and vegetables than the general population. For example, around 40% of Chinese men and women regularly consume five portions of fruit and vegetables a day (the recommended level of consumption), compared to only about one in four people in the general population (Table 3.4). However, these findings are not supported by the Family Food Survey, which uses a different methodology based on purchase of foods to estimate consumption levels. According to this survey, between 2005 and 2007, consumption of fruit and vegetables was lower in the Asian than in the White ethnic group (primarily because of lower consumption of fruit). However, this survey suggests that in many other nutritional aspects the diet of non-White ethnic groups in Great Britain is healthier than that of the White population – for example, saturated fat and salt consumption are both highest in the White population (Table 3.5).

Physical Activity

In 2004, nearly 80% of men and 75% of women took part in some form of physical activity, and nearly 70% of men and over 60% of women did so at least once a week. In general, non-White ethnic groups showed slightly lower participation rates than the general population, but were particularly lower for

the Bangladeshi ethnic group, where only half of Bangladeshi men and a third of Bangladeshi women participated in physical activity at least once a week (Table 3.7). This is reflected in the achievement of physical activity recommendations (30 minutes or more of at least moderate activity on at least five days a week), where only a quarter of Bangladeshi men and one in ten Bangladeshi women achieve the recommendation – far lower than the general population. Among ethnic groups, Irish (39% of men, 29% of women) and Black Caribbean (37% of men, 31% of women) people were most likely to meet the recommendations for physical activity. In general, rates were higher in the youngest age group (16-34) and decreased steadily with age for all ethnic groups for both genders (Table 3.6).

Ethnic groups exhibit differences with regards to type of physical activity performed. Pakistani and Bangladeshi men engaged less frequently in any physical activities, heavy housework, walking, sports or exercise compared to the general population. Pakistani and Bangladeshi women were similarly less likely to participate in heavy gardening, walking, sports or exercise than the general population. Among all ethnic groups, the most common form of specific physical activity was sports and exercise for men and heavy housework for women (Table 3.7).

Alcohol

The amount of alcohol consumed on a regular basis varies dramatically by ethnic group. Drinking any alcohol at all is rare in the Pakistani and Bangladeshi ethnic groups, and abstention from alcohol is far more common in the Indian, Black and Chinese ethnic groups than in the general population. In England, a quarter of men and around 15% of women in the general population regularly consume greater than 8 units (for men) or 6 units (for women) on the heaviest drinking day of the week – the government definition of ‘binge drinking’. These levels are far lower in all ethnic groups with the exception of the Irish. Only around one in ten Black, Indian or Chinese men regularly binge drink, and only around 5% of women from these ethnic groups (Table 3.8).

Blood pressure

The British Hypertension Society uses the definition of hypertension as the presence of raised systolic or diastolic blood pressure (above 140mmHg or above 90mmHg, respectively). The optimal blood pressure level is now classified as less than 120mmHg for systolic and less than 80mmHg for diastolic blood pressure⁴. Data on ethnic differences in blood pressure levels are found in the 2004 Health Survey for England, where respondents were considered hypertensive if either systolic or diastolic blood pressure was elevated or they were taking medication to control their blood pressure. In the general population, around a third of men and women were hypertensive. The prevalence of hypertension was highest in Black Caribbean men (38%) and women (32%) and lowest in Bangladeshi men (16%) and Pakistani women (15%). In general, prevalence of hypertension was slightly higher in men than in women for each ethnic group (Table 3.9).

Cholesterol

For both men and women, mean total cholesterol was lower in all ethnic groups than in the general population in 2004, except for the Irish group. In general, mean levels of total cholesterol were similar for men and women for all ethnic groups. The prevalence of raised cholesterol (greater than or equal to 5mmol/l) was higher in the general population than in any ethnic group with the exception of the Irish. In some cases this difference was substantial – less than half of Black African women aged 16 and over had raised cholesterol compared to two thirds of women in the general population. Ethnic patterns in levels of HDL-cholesterol (the fraction that removes cholesterol from the blood) were very different, with

a higher prevalence of low-HDL cholesterol in most ethnic groups compared to the general population. For example, 8% of Bangladeshi women had low HDL-cholesterol compared to only 2% of the general population (Table 3.10).

Obesity

There are a number of different methods used for defining overweight and obesity based on easy to perform anthropometric measurements. These include body mass index (BMI), waist-to-hip ratio (WHR) and waist circumference (WC). Because individuals from different ethnic groups tend to store fat in different places of the body and therefore have different body shapes, it is useful to compare measurements generated by the different techniques when considering ethnic differences in obesity.

Using the BMI method, in 2004 the prevalence of obesity in men was substantially lower in the South Asian community, and also in Chinese men than in the general population. Using this definition as few as 6% of Chinese and Bangladeshi men were defined as obese, compared to 23% of men in the general population aged 16 and over. Similarly, the prevalence of obesity in Bangladeshi and Chinese women was lower than the general population when measured by BMI, although the difference was not as substantial. However, this difference is entirely removed when the WHR method is used – using this technique the prevalence of obesity in Bangladeshi men is similar to that of men in the general population (around one in three men), and the prevalence of obesity in Bangladeshi women is higher than that of women in the general population. Ethnic differences in obesity measured using WC are similar to those found using the WHR method, with a few exceptions. For example, using WHR the prevalence of obesity in Indian men (38%) is more than double the prevalence in Black African men (16%) – however, the prevalence of obesity in these ethnic groups using the WC method is very similar (around one in five men in both ethnic groups) (Table 3.11 and Figures 3.11a and 3.11b).

The National Childhood Measurement Programme has begun to collect data on the height and weight of all children in reception class and year six of state primary schools in England. These data have been used to calculate the BMI of children and compare them to national growth charts in order to make age-specific definitions of overweight and obesity. According to these data, in 2007/08 the prevalence of overweight and obesity in young children is highest in the Black ethnic group – around three in ten children in reception class (aged four or five) and around four in ten children in year six (aged ten or eleven). In contrast the prevalence of overweight and obesity in other ethnic groups was around 20% in the reception class and 30-35% in year six. For both age groups, the prevalence of overweight and obesity was lowest in the Chinese population (Table 3.12). These results should be treated with caution as they are only based on the BMI method, and the definitions of overweight and obesity are taken from growth charts compiled using data from White children only.

Diabetes

In 2004, the prevalence of doctor-diagnosed diabetes in the general population was 4% for men and 3% for women, with the majority being attributed to type II diabetes. Black Caribbean, Indian, Bangladeshi and Pakistani men had a considerably higher prevalence of any type of diabetes (10%, 10%, 8% and 7% respectively). Among women, Black Caribbean and Pakistani women had a considerably higher prevalence of any type of diabetes (8% and 9%). In contrast, the prevalence of diabetes in Black African and Irish women was considerably lower than in the general population (Table 3.13 and Figure 3.13).

1. *Parliamentary Office of Science and Technology (2007). Ethnicity and Health. Postnote, number 276. Parliamentary Office of Science and Technology: London.*
2. *Joint Health Surveys Unit (2006). Health Survey for England 2004. The health of minority ethnic groups. The Stationery Office: London.*
3. *Department for the Environment, Food and Rural Affairs (2008). Family Food in 2007. The Stationery Office: London.*
4. *Williams B, Poulter NR, Brown MJ, Davis M, McInnes GT, Potter JP, Sever PS and Thom S; The BHS Guidelines Working Party (2004). British Hypertension Society Guidelines for Hypertension Management, 2004 – BHS IV: Summary. BMJ; 328: 634-640.*

Table 3.1 Cigarette smoking by sex, age and ethnic group, 2004, England

| | MEN | | | | WOMEN | | | |
|----------------------------|-------|-------|-------|----------|-------|-------|-------|----------|
| | 16-34 | 35-54 | 55+ | All ages | 16-34 | 35-54 | 55+ | All ages |
| | % | % | % | % | % | % | % | % |
| Black Caribbean | 27 | 34 | 12 | 25 | 44 | 21 | 5 | 24 |
| Black African | 21 | 20 | 25 | 21 | 15 | 6 | 2 | 10 |
| Indian | 18 | 22 | 19 | 20 | 8 | 4 | 3 | 5 |
| Pakistani | 28 | 34 | 18 | 29 | 5 | 7 | | 5 |
| Bangladeshi | 35 | 49 | 29 | 40 | 1 | 4 | 3 | 2 |
| Chinese | 25 | 21 | 9 | 21 | 12 | 5 | 4 | 8 |
| Irish | 46 | 26 | 25 | 30 | 35 | 26 | 21 | 26 |
| General population | 32 | 26 | 14 | 24 | 28 | 26 | 15 | 23 |
| <i>Bases (unweighted):</i> | | | | | | | | |
| Black Caribbean | 114 | 165 | 124 | 403 | 186 | 289 | 162 | 637 |
| Black African | 172 | 169 | 38 | 379 | 224 | 189 | 44 | 457 |
| Indian | 199 | 230 | 118 | 547 | 237 | 274 | 119 | 630 |
| Pakistani | 213 | 145 | 65 | 423 | 268 | 164 | 65 | 497 |
| Bangladeshi | 198 | 149 | 49 | 396 | 287 | 117 | 49 | 453 |
| Chinese | 170 | 117 | 58 | 345 | 145 | 176 | 51 | 372 |
| Irish | 114 | 194 | 188 | 496 | 147 | 275 | 231 | 653 |
| General population | 721 | 973 | 1,161 | 2,855 | 895 | 1,374 | 1,536 | 3,805 |

Notes: General population data is from 2003. Blank cells indicate too few respondents for accurate estimate.

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Fig 3.1 Cigarette smoking by sex and ethnic group, 2004, England

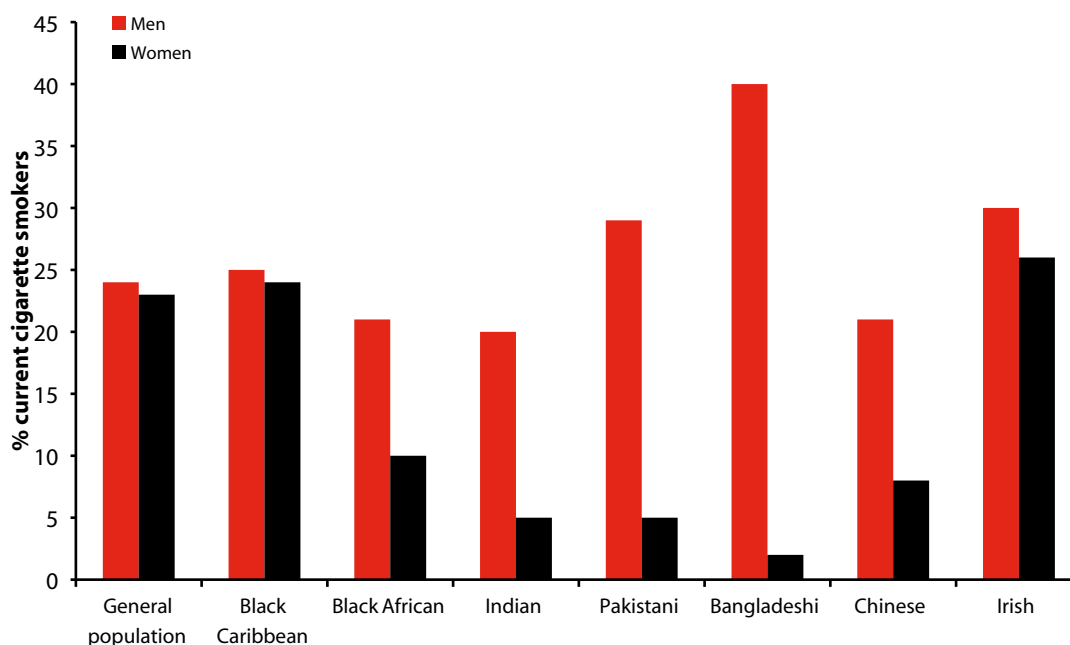


Table 3.2 Self reported use of tobacco products by ethnic group and sex, 2004, England

| | Black Caribbean | Black African | Indian | Pakistani | Bangladeshi | Chinese | Irish | General Population |
|----------------------------|--------------------|------------------|------------|------------|-------------|------------|------------|-----------------------|
| MEN | | | | | | | | |
| Percentage consuming: | | | | | | | | |
| Cigarettes | 25 | 21 | 20 | 29 | 40 | 21 | 30 | 24 |
| Cigars | 7 | 11 | 7 | 5 | 4 | 10 | 11 | 12 |
| Pipes | 0 | 1 | 0 | 1 | 0 | 2 | 2 | 2 |
| Chewing tobacco | | | 4 | 2 | 9 | | | |
| Any tobacco product | 28 | 22 | 24 | 30 | 44 | 23 | 36 | 28 |
| WOMEN | | | | | | | | |
| Percentage consuming: | | | | | | | | |
| Cigarettes | 24 | 10 | 5 | 5 | 2 | 8 | 26 | 23 |
| Cigars | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |
| Chewing tobacco | | | 1 | 1 | 16 | | | |
| Any tobacco product | 24 | 10 | 6 | 7 | 17 | 8 | 26 | 23 |
| <i>Bases (unweighted)</i> | | | | | | | | |
| MEN | 403 | 379 | 546 | 423 | 396 | 345 | 496 | 2,853 |
| WOMEN | 637 | 457 | 628 | 497 | 451 | 372 | 653 | 3,803 |

Notes: Adults aged 16 and over. Use of cigars and pipes was only asked of men and women who answered the questions about smoking. Use of chewing tobacco products was only asked of South Asian informants.

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Table 3.3 *People setting a smoking cessation date and successful quitters, by ethnic group, 2007/08, England*

| | Number setting a quit date | Number who had successfully quit at 4 week follow-up | Percentage who had successfully quit at 4 week follow-up |
|----------------------------|----------------------------|------------------------------------------------------|----------------------------------------------------------|
| White | 577,720 | 296,120 | 51 |
| British | 555,193 | 284,538 | 51 |
| Irish | 6,484 | 3,288 | 51 |
| Any other White background | 16,043 | 8,294 | 52 |
| Mixed | 8,169 | 4,215 | 52 |
| White and Black Caribbean | 2,862 | 1,281 | 45 |
| White and Black African | 1,041 | 441 | 42 |
| White and Asian | 1,228 | 542 | 44 |
| Any other mixed background | 3,038 | 1,951 | 64 |
| Asian or Asian British | 15,210 | 7,673 | 50 |
| Indian | 4,730 | 2,436 | 52 |
| Pakistani | 4,987 | 2,382 | 48 |
| Bangladeshi | 2,879 | 1,544 | 54 |
| Any other Asian background | 2,614 | 1,311 | 50 |
| Black or Black British | 8,869 | 4,013 | 45 |
| Caribbean | 4,446 | 2,000 | 45 |
| African | 2,849 | 1,337 | 47 |
| Any other Black background | 1,574 | 676 | 43 |
| Other ethnic groups | 5,486 | 2,677 | 49 |
| Chinese | 605 | 302 | 50 |
| Any other ethnic group | 4,881 | 2,375 | 49 |
| Not stated | 64,835 | 36,102 | 56 |
| Total | 680,289 | 350,800 | 52 |

Notes: A client is counted as having successfully quit smoking at the 4 week follow-up if he/she reports not smoking at all since two weeks after the quit date.

Source: Department of Health (2008) *Statistics on NHS stop smoking services: England, April 2007 to March 2008*. The Information Centre: Leeds.

Table 3.4 Consumption of fruit and vegetables by sex and ethnic group, 2004, England

| | Black Caribbean | Black African | Indian | Pakistani | Bangladeshi | Chinese | Irish | General Population |
|-------------------------------|-----------------|---------------|--------|-----------|-------------|---------|-------|--------------------|
| MEN | | | | | | | | |
| Percentage consuming per day: | | | | | | | | |
| None | 8 | 8 | 4 | 4 | 6 | 3 | 11 | 8 |
| Less than 1 portion | 2 | 3 | 2 | 3 | 2 | 3 | 3 | 4 |
| Between 1 and <2 portions | 16 | 16 | 13 | 13 | 14 | 9 | 18 | 16 |
| Between 2 and <3 portions | 16 | 16 | 15 | 14 | 17 | 15 | 14 | 19 |
| Between 3 and <4 portions | 14 | 13 | 15 | 15 | 14 | 19 | 15 | 16 |
| Between 4 and <5 portions | 12 | 14 | 14 | 17 | 17 | 13 | 14 | 14 |
| 5 portions or more | 32 | 31 | 37 | 33 | 32 | 36 | 26 | 23 |
| Mean portions consumed | 3.9 | 3.7 | 4.2 | 4.3 | 3.8 | 4.4 | 3.6 | 3.3 |
| WOMEN | | | | | | | | |
| Percentage consuming per day: | | | | | | | | |
| None | 7 | 5 | 3 | 4 | 5 | 1 | 5 | 6 |
| Less than 1 portion | 1 | 2 | 1 | 4 | 5 | 1 | 3 | 3 |
| Between 1 and <2 portions | 17 | 18 | 9 | 13 | 14 | 10 | 15 | 16 |
| Between 2 and <3 portions | 18 | 14 | 19 | 17 | 18 | 13 | 17 | 18 |
| Between 3 and <4 portions | 13 | 14 | 17 | 14 | 17 | 15 | 17 | 16 |
| Between 4 and <5 portions | 13 | 15 | 15 | 16 | 13 | 17 | 11 | 14 |
| 5 portions or more | 31 | 32 | 36 | 32 | 28 | 42 | 32 | 27 |
| Mean portions consumed | 3.9 | 3.8 | 4.4 | 4.0 | 3.6 | 4.9 | 3.9 | 3.6 |
| <i>Bases (unweighted)</i> | | | | | | | | |
| Men | 412 | 390 | 550 | 432 | 411 | 348 | 497 | 2,978 |
| Women | 652 | 469 | 634 | 508 | 478 | 375 | 656 | 3,825 |

Notes: Adults aged 16 and over.

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Table 3.5 Consumption of energy, fat, saturated fat, sugar, salt, fibre and fruit and vegetables, by ethnic group, 2005 to 2007, United Kingdom

| <i>Consumption per person per day, total diet (i.e. including alcohol)</i> | Asian/ Asian British | Black/ Black British | Chinese and others | Mixed | White |
|--------------------------------------------------------------------------------|-------------------------|-------------------------|-----------------------|-------|-------|
| Energy (kcal) | 2,203 | 2,086 | 2,036 | 2,097 | 2,368 |
| Fat (g) | 91 | 83 | 89 | 90 | 98 |
| Fat (% total energy) | 37.0 | 35.9 | 39.4 | 38.7 | 37.1 |
| Saturated fat (g) | 30 | 27 | 29 | 31 | 38 |
| Saturated fat (% total energy) | 12.2 | 11.5 | 12.8 | 13.4 | 14.4 |
| Total sugars (g) | 107 | 118 | 103 | 108 | 135 |
| Non-milk extrinsic sugars (g) | 66 | 79 | 63 | 72 | 88 |
| Non-milk extrinsic sugars (% total energy) | 11.2 | 14.2 | 11.6 | 12.8 | 13.9 |
| Non-starch polysaccharide fibre (g) | 14 | 14 | 14 | 14 | 16 |
| Sodium (g) | 1.8 | 2.0 | 2.1 | 2.6 | 3.1 |
| Salt (g) | 4.5 | 5.1 | 5.2 | 6.6 | 7.7 |
| <i>Purchase per person per week</i> | | | | | |
| Fruit (g) | 1,184 | 1,587 | 1,446 | 1,232 | 1,322 |
| Vegetables (g) | 1,188 | 1,122 | 1,288 | 1,046 | 1,185 |

Notes: Sodium intake does not include sodium from table salt. Salt intake = sodium x 2.52. Consumption assumed from purchase data.

Source: Department for the Environment, Food and Rural Affairs (2008) Family Food in 2007. The Stationery Office: London.

Table 3.6 Summary physical activity levels by age, sex and ethnic group, 2004, England

| | MEN | | | | WOMEN | | | |
|---------------------------|-------|-------|-------|---------|-------|-------|-------|-----------|
| | 16-34 | 35-54 | 55+ | All Men | 16-34 | 35-54 | 55+ | All Women |
| | % | % | % | % | % | % | % | % |
| Black Caribbean | | | | | | | | |
| Low levels | 17 | 22 | 66 | 34 | 28 | 37 | 57 | 39 |
| High levels | 49 | 39 | 22 | 37 | 37 | 36 | 17 | 31 |
| Black African | | | | | | | | |
| Low levels | 33 | 35 | 45 | 35 | 43 | 38 | 69 | 43 |
| High levels | 36 | 34 | 33 | 35 | 33 | 26 | 21 | 29 |
| Indian | | | | | | | | |
| Low levels | 35 | 40 | 68 | 44 | 35 | 40 | 79 | 45 |
| High levels | 34 | 33 | 18 | 30 | 26 | 26 | 11 | 23 |
| Pakistani | | | | | | | | |
| Low levels | 39 | 50 | 88 | 51 | 44 | 56 | 74 | 52 |
| High levels | 37 | 26 | 5 | 28 | 15 | 13 | 10 | 14 |
| Bangladeshi | | | | | | | | |
| Low levels | 42 | 57 | 78 | 51 | 62 | 71 | 92 | 68 |
| High levels | 29 | 27 | 9 | 26 | 15 | 7 | 2 | 11 |
| Chinese | | | | | | | | |
| Low levels | 30 | 43 | 50 | 38 | 45 | 42 | 67 | 47 |
| High levels | 31 | 28 | 31 | 30 | 16 | 19 | 15 | 17 |
| Irish | | | | | | | | |
| Low levels | 11 | 27 | 53 | 33 | 21 | 28 | 46 | 33 |
| High levels | 54 | 41 | 27 | 39 | 30 | 36 | 19 | 29 |
| General population | | | | | | | | |
| Low levels | 20 | 26 | 51 | 32 | 28 | 29 | 57 | 39 |
| High levels | 51 | 39 | 22 | 37 | 31 | 31 | 14 | 25 |
| <i>Bases (unweighted)</i> | | | | | | | | |
| <i>Black Caribbean</i> | 120 | 164 | 125 | 409 | 198 | 289 | 161 | 648 |
| <i>Black African</i> | 177 | 170 | 39 | 386 | 234 | 190 | 43 | 467 |
| <i>Indian</i> | 200 | 231 | 118 | 549 | 240 | 275 | 119 | 634 |
| <i>Pakistani</i> | 222 | 142 | 65 | 429 | 279 | 164 | 65 | 508 |
| <i>Bangladeshi</i> | 210 | 150 | 48 | 408 | 309 | 118 | 50 | 477 |
| <i>Chinese</i> | 172 | 118 | 58 | 348 | 148 | 176 | 51 | 375 |
| <i>Irish</i> | 114 | 194 | 189 | 497 | 149 | 275 | 232 | 656 |
| <i>General population</i> | 737 | 974 | 1,162 | 2,873 | 914 | 1,372 | 1,532 | 3,818 |

Notes: High levels indicate adherence to the physical activity recommendations (30 minutes or more at least moderate activity on at least 5 days a week). Low levels indicate inactivity defined as less than one 30 minute moderate or vigorous activity session a week.

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Table 3.7 *Prevalence of different types of physical activity by sex and ethnic group, 2004, England*

| | Black Caribbean % | Black African % | Indian % | Pakistani % | Bangladeshi % | Chinese % | Irish % | General Population % |
|------------------------------|-------------------------|-----------------------|-------------|----------------|------------------|--------------|------------|----------------------------|
| MEN | | | | | | | | |
| Heavy housework | | | | | | | | |
| Any | 42 | 34 | 35 | 20 | 19 | 34 | 38 | 38 |
| At least once a week | 22 | 18 | 14 | 7 | 10 | 16 | 20 | 17 |
| Heavy gardening/DIY/building | | | | | | | | |
| Any | 18 | 9 | 15 | 10 | 5 | 10 | 24 | 29 |
| At least once a week | 11 | 3 | 7 | 5 | 3 | 4 | 15 | 16 |
| Walking | | | | | | | | |
| Any | 24 | 27 | 19 | 14 | 17 | 21 | 32 | 32 |
| At least once a week | 18 | 25 | 15 | 11 | 16 | 17 | 23 | 25 |
| Sports and exercise | | | | | | | | |
| Any | 46 | 43 | 32 | 31 | 26 | 49 | 39 | 41 |
| At least once a week | 39 | 35 | 26 | 25 | 22 | 39 | 33 | 33 |
| Any physical activities | | | | | | | | |
| Any | 74 | 75 | 68 | 58 | 54 | 76 | 78 | 79 |
| At least once a week | 66 | 65 | 56 | 49 | 49 | 62 | 67 | 68 |
| <i>Bases (unweighted)</i> | 409 | 386 | 549 | 429 | 408 | 348 | 497 | 2,873 |
| WOMEN | | | | | | | | |
| Heavy housework | | | | | | | | |
| Any | 50 | 47 | 48 | 49 | 32 | 42 | 63 | 55 |
| At least once a week | 29 | 27 | 29 | 31 | 19 | 26 | 36 | 31 |
| Heavy gardening/DIY/building | | | | | | | | |
| Any | 10 | 4 | 6 | 4 | 4 | 4 | 9 | 11 |
| At least once a week | 4 | 1 | 2 | 1 | 2 | 1 | 2 | 4 |
| Walking | | | | | | | | |
| Any | 24 | 22 | 18 | 12 | 8 | 17 | 33 | 27 |
| At least once a week | 18 | 17 | 16 | 9 | 7 | 14 | 28 | 22 |
| Sports and exercise | | | | | | | | |
| Any | 36 | 28 | 27 | 16 | 12 | 34 | 38 | 34 |
| At least once a week | 27 | 20 | 21 | 13 | 11 | 27 | 29 | 25 |
| Any physical activities | | | | | | | | |
| Any | 73 | 70 | 68 | 60 | 41 | 67 | 81 | 75 |
| At least once a week | 61 | 57 | 55 | 48 | 32 | 53 | 67 | 61 |
| <i>Bases (unweighted)</i> | 648 | 467 | 634 | 508 | 477 | 375 | 656 | 3,818 |

Notes: 'Any' is defined as participation for at least 30 minutes in moderate or vigorous intensity activity in the four weeks prior to interview.
At least once a week' refers to participation for at least 30 minutes a week on average in moderate or vigorous intensity, i.e. at least four sessions in the four weeks prior to interview.

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Table 3.8 Amount consumed on the heaviest drinking day in the past week, by ethnic group and sex, 2004, England

| | Black Caribbean | Black African | Indian | Pakistani | Bangladeshi | Chinese | Irish | General population |
|---------------------------|-----------------|---------------|--------|-----------|-------------|---------|-------|--------------------|
| MEN | | | | | | | | |
| Percentage who consumed: | | | | | | | | |
| None | 40 | 62 | 53 | 93 | 99 | 52 | 20 | 24 |
| 4 or more units | 28 | 17 | 22 | 4 | 1 | 19 | 56 | 45 |
| 8 or more units | 12 | 7 | 9 | 3 | 0 | 10 | 32 | 25 |
| Mean units consumed | 3.0 | 1.5 | 2.1 | 0.4 | 0.1 | 2.1 | 6.4 | 5.2 |
| WOMEN | | | | | | | | |
| Percentage who consumed: | | | | | | | | |
| None | 53 | 74 | 79 | 97 | 99 | 68 | 33 | 39 |
| 3 or more units | 18 | 7 | 8 | 1 | 1 | 12 | 36 | 30 |
| 6 or more units | 6 | 2 | 4 | 1 | 0 | 4 | 16 | 14 |
| Mean units consumed | 1.4 | 0.6 | 0.7 | 0.1 | 0.0 | 0.9 | 2.6 | 2.2 |
| <i>Bases (unweighted)</i> | | | | | | | | |
| Men | 397 | 369 | 531 | 416 | 395 | 337 | 490 | 2,829 |
| Women | 618 | 446 | 618 | 495 | 448 | 364 | 642 | 3,745 |

Notes: Adults aged 16 and over. Not all percentages add to 100 as not all categories are included.

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Table 3.9 Prevalence of hypertension by ethnic group and sex, 2004, England

| | Black Caribbean | Black African | Indian | Pakistani | Bangladeshi | Chinese | Irish | General population |
|------------------------------|-----------------|---------------|--------|-----------|-------------|---------|-------|--------------------|
| MEN | | | | | | | | |
| Percentage within each group | | | | | | | | |
| Normotensive untreated | 62 | 75 | 67 | 80 | 84 | 80 | 64 | 68 |
| Normotensive treated | 10 | 4 | 11 | 6 | 3 | 4 | 7 | 5 |
| Hypertensive treated | 10 | 5 | 6 | 2 | 6 | 5 | 7 | 6 |
| Hypertensive untreated | 19 | 16 | 16 | 11 | 7 | 11 | 23 | 20 |
| All with high blood pressure | 38 | 25 | 33 | 20 | 16 | 20 | 36 | 32 |
| WOMEN | | | | | | | | |
| Percentage within each group | | | | | | | | |
| Normotensive untreated | 68 | 81 | 82 | 85 | 81 | 84 | 71 | 71 |
| Normotensive treated | 9 | 5 | 4 | 4 | 6 | 6 | 4 | 6 |
| Hypertensive treated | 10 | 2 | 6 | 5 | 5 | 3 | 9 | 8 |
| Hypertensive untreated | 13 | 12 | 7 | 5 | 7 | 7 | 15 | 16 |
| All with high blood pressure | 32 | 19 | 18 | 15 | 19 | 16 | 29 | 29 |
| <i>Bases (unweighted)</i> | | | | | | | | |
| Men | 155 | 123 | 265 | 162 | 99 | 153 | 240 | 4,108 |
| Women | 243 | 154 | 320 | 207 | 144 | 166 | 328 | 5,075 |

Notes: Adults aged 16 and over with a valid blood pressure reading and data on medication. Respondents were classified as having high blood pressure if their systolic blood pressure was 140mmHg or over or their diastolic blood pressure was 90mmHg or over, or they were taking medication affecting blood pressure. 'Treated' means taking medication prescribed for high blood pressure.

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Table 3.10 Total cholesterol and HDL-cholesterol, by ethnic group and sex, 2004, England

| | Black Caribbean | Black African | Indian | Pakistani | Bangladeshi | Chinese | Irish | General population |
|--------------------------------------------|--------------------|------------------|--------|-----------|-------------|---------|-------|-----------------------|
| MEN | | | | | | | | |
| Total Cholesterol | | | | | | | | |
| Mean (mmol/l) | 5.1 | 5.1 | 5.3 | 5.3 | 5.3 | 5.1 | 5.4 | 5.5 |
| Prevalence of raised total cholesterol (%) | 51 | 55 | 60 | 55 | 60 | 60 | 67 | 66 |
| HDL-cholesterol | | | | | | | | |
| Mean (mmol/l) | 1.4 | 1.4 | 1.3 | 1.2 | 1.1 | 1.3 | 1.4 | 1.4 |
| Prevalence of low HDL-cholesterol (%) | 4 | 2 | 11 | 20 | 20 | 8 | 5 | 6 |
| WOMEN | | | | | | | | |
| Total Cholesterol | | | | | | | | |
| Mean (mmol/l) | 5.2 | 4.8 | 5.1 | 5.1 | 5.1 | 5.1 | 5.6 | 5.6 |
| Prevalence of raised total cholesterol (%) | 56 | 44 | 53 | 53 | 55 | 52 | 67 | 67 |
| HDL-cholesterol | | | | | | | | |
| Mean (mmol/l) | 1.6 | 1.4 | 1.4 | 1.4 | 1.2 | 1.7 | 1.6 | 1.6 |
| Prevalence of low HDL-cholesterol (%) | 1 | 3 | 4 | 6 | 8 | 1 | 2 | 2 |
| <i>Bases (unweighted)</i> | | | | | | | | |
| Men | 137 | 103 | 234 | 137 | 87 | 101 | 244 | 3,814 |
| Women | 195 | 118 | 256 | 143 | 98 | 108 | 300 | 4,460 |

Notes: Raised total cholesterol defined as greater than or equal to 5.0mmol/l. Low HDL-cholesterol defined as less than 1.0mmol/l.

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Table 3.11 Body mass index, waist-hip ratio and waist circumference by ethnic group and sex, 2004, England

| | Black Caribbean | Black African | Indian | Pakistani | Bangladeshi | Chinese | Irish | General population |
|------------------------------------------------------|--------------------|------------------|--------|-----------|-------------|---------|-------|-----------------------|
| MEN | | | | | | | | |
| Mean Body Mass Index (BMI) | 27.1 | 26.4 | 25.8 | 25.9 | 24.7 | 24.1 | 27.2 | 27.1 |
| Percentage with BMI of 30 kg/m ² and over | 25 | 17 | 14 | 15 | 6 | 6 | 25 | 23 |
| Mean waist-hip ratio | 0.90 | 0.87 | 0.92 | 0.92 | 0.91 | 0.87 | 0.93 | 0.92 |
| Percentage with waist-hip ratio 0.95 and over | 25 | 16 | 38 | 36 | 32 | 17 | 36 | 33 |
| Mean waist circumference | 92.5 | 90.6 | 93.0 | 95.0 | 88.7 | 86.8 | 97.3 | 96.5 |
| Percentage with waist circumference 102cm and over | 22 | 19 | 20 | 30 | 12 | 8 | 33 | 31 |
| WOMEN | | | | | | | | |
| Mean Body Mass Index (BMI) | 28.0 | 28.8 | 26.2 | 27.1 | 25.7 | 23.2 | 26.7 | 26.8 |
| Percentage with BMI of 30 kg/m ² and over | 32 | 38 | 20 | 28 | 17 | 8 | 21 | 23 |
| Mean waist-hip ratio | 0.83 | 0.81 | 0.82 | 0.84 | 0.85 | 0.81 | 0.83 | 0.82 |
| Percentage with waist-hip ratio 0.85 and over | 37 | 32 | 30 | 39 | 50 | 22 | 37 | 30 |
| Mean waist circumference | 88.4 | 90.2 | 83.9 | 87.7 | 85.7 | 77.6 | 87.4 | 86.4 |
| Percentage with waist circumference 88cm and over | 47 | 53 | 38 | 48 | 43 | 16 | 43 | 41 |
| <i>Bases (unweighted)</i> | | | | | | | | |
| Men | 209 | 156 | 310 | 197 | 138 | 182 | 311 | 5,397 |
| Women | 314 | 200 | 345 | 224 | 171 | 185 | 405 | 5,554 |

Notes: Adults aged 16 and over

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Figure 3.11a Body mass index, waist-hip ratio and waist circumference by ethnic group, men, 2004, England

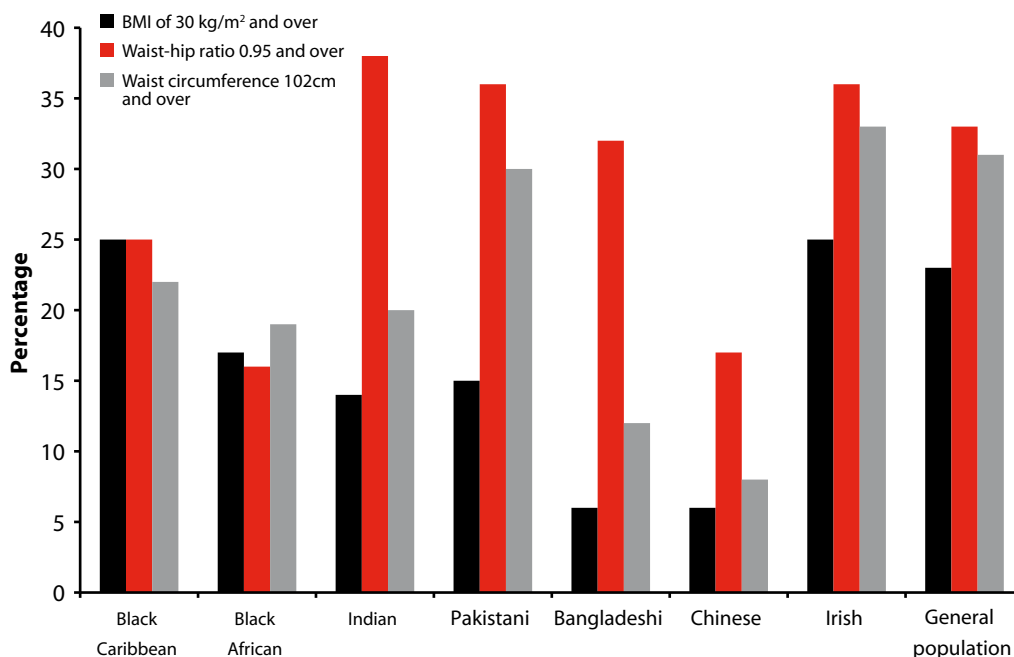


Figure 3.11b Body mass index, waist-hip ratio and waist circumference by ethnic group, women, 2004, England

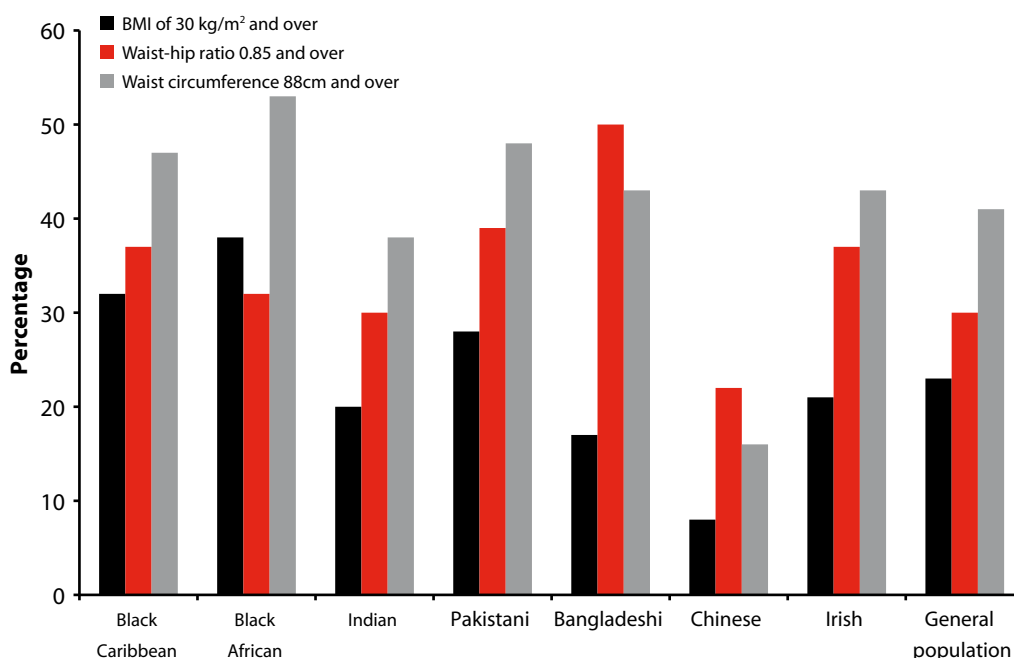


Table 3.12 Prevalence of underweight, overweight and obese by ethnic group, children in reception class and year six, 2007/08, England

| | White | Mixed | Asian or Asian British | Black or Black British | Chinese | Any Other Ethnic Group | Unknown | All children |
|-------------------------|---------|--------|------------------------|------------------------|---------|------------------------|---------|--------------|
| RECEPTION CLASS | | | | | | | | |
| Percentage of children: | | | | | | | | |
| Underweight | 1 | 1 | 4 | 1 | 1 | 1 | 1 | 1 |
| Healthy weight | 77 | 77 | 77 | 70 | 84 | 73 | 76 | 76 |
| Overweight | 14 | 12 | 9 | 14 | 9 | 13 | 13 | 13 |
| Obese | 9 | 10 | 10 | 15 | 6 | 13 | 10 | 10 |
| Overweight or obese | 23 | 22 | 19 | 29 | 14 | 26 | 23 | 23 |
| <i>Base</i> | 245,087 | 14,134 | 35,600 | 19,791 | 1,094 | 5,519 | 156,427 | 477,652 |
| YEAR SIX | | | | | | | | |
| Percentage of children: | | | | | | | | |
| Underweight | 1 | 1 | 4 | 1 | 3 | 2 | 1 | 1 |
| Healthy weight | 67 | 64 | 61 | 57 | 71 | 61 | 66 | 66 |
| Overweight | 14 | 14 | 14 | 15 | 12 | 15 | 14 | 14 |
| Obese | 17 | 20 | 22 | 26 | 14 | 22 | 18 | 18 |
| Overweight or obese | 31 | 35 | 36 | 42 | 26 | 37 | 32 | 33 |
| <i>Bases</i> | 265,418 | 12,160 | 30,782 | 19,521 | 1,158 | 5,414 | 160,968 | 495,421 |

Notes: Children are four years old at the start of reception class and ten years old at the start of year six. Definitions of underweight, healthy weight, overweight and obesity are based on percentiles of United Kingdom growth charts.

Source: National Obesity Observatory (2009). National Child Measurement Programme: 2007/08 school year, headline results. National Obesity Observatory: Oxford. <http://www.ncmp.ic.nhs.uk/>

Figure 3.12 Percentage of overweight or obese children in reception class and year six by ethnic group, 2007/08, England

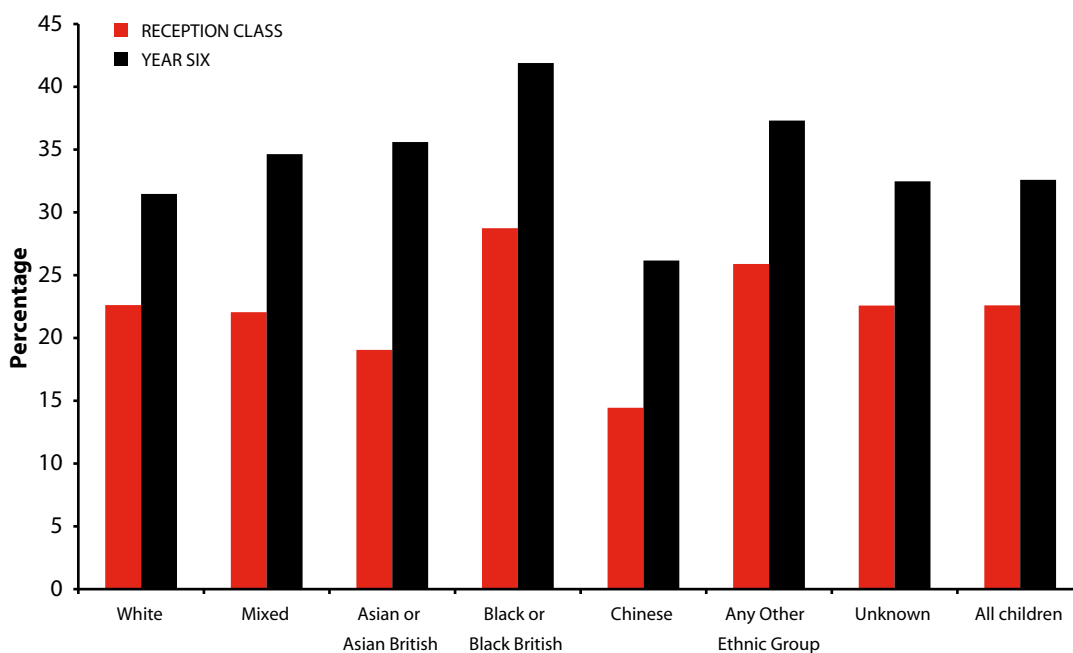


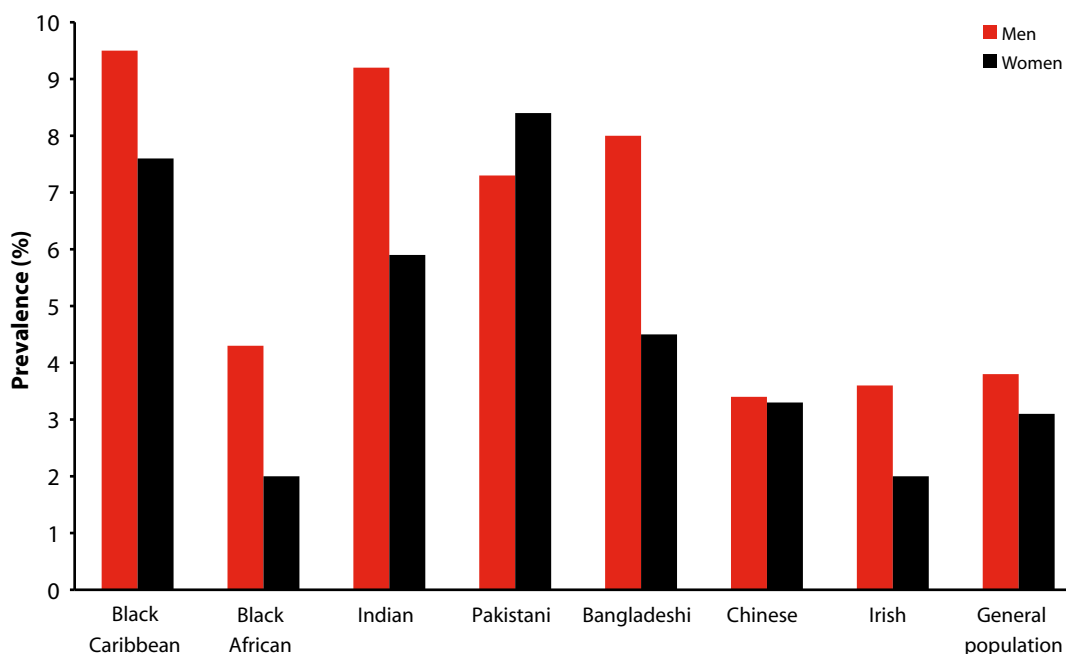
Table 3.13 Prevalence of doctor-diagnosed diabetes by sex and ethnic group, 2004, England

| | Black Caribbean | Black African | Indian | Pakistani | Bangladeshi | Chinese | Irish | General population |
|----------------------------|-----------------|---------------|--------|-----------|-------------|---------|-------|--------------------|
| MEN | | | | | | | | |
| Prevalence of diabetes (%) | | | | | | | | |
| Type 1 | 0.5 | 0.7 | 0.9 | 0.0 | 0.2 | 0.3 | 0.0 | 0.6 |
| Type 2 | 9.5 | 4.3 | 9.2 | 7.3 | 8.0 | 3.4 | 3.6 | 3.8 |
| Any | 10.0 | 5.0 | 10.1 | 7.3 | 8.2 | 3.8 | 3.6 | 4.3 |
| WOMEN | | | | | | | | |
| Prevalence of diabetes (%) | | | | | | | | |
| Type 1 | 0.8 | 0.1 | 0.0 | 0.2 | 0.6 | 0.0 | 0.3 | 0.3 |
| Type 2 | 7.6 | 2.0 | 5.9 | 8.4 | 4.5 | 3.3 | 2.0 | 3.1 |
| Any | 8.4 | 2.1 | 5.9 | 8.6 | 5.2 | 3.3 | 2.3 | 3.4 |
| Bases (unweighted) | | | | | | | | |
| Men | 414 | 390 | 550 | 433 | 411 | 348 | 497 | 6,602 |
| Women | 653 | 469 | 634 | 508 | 478 | 375 | 656 | 8,234 |

Notes: Adults aged 16 and over.

Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

Figure 3.13 Prevalence of doctor-diagnosed diabetes (Type II) by sex and ethnic group, 2004, England



Appendix

Population by ethnic group, 2007, England

| | Number of people resident in England | Percentage of total population of England |
|-------------------|-----------------------------------------|----------------------------------------------|
| White | 45,082,800 | 88% |
| Mixed | 870,100 | 2% |
| Asian | 2,914,800 | 6% |
| Black | 1,447,900 | 3% |
| Chinese and other | 776,400 | 2% |
| Total | 51,092,000 | 100% |

Notes: These estimates are based on extrapolations of data from the 2001 census, using estimates of births, deaths and migration. They are described by the Office for National Statistics as experimental. Similar estimates are not available for Scotland, Wales and Northern Ireland. Population estimates are rounded to the nearest hundred.

Source: Office for National Statistics (2009) *Population estimates by ethnic group (experimental)*. Available from www.statistics.gov.uk

Population by ethnic group and socio-economic classification, 2001, United Kingdom

| | Managerial and professional | | Intermediate | | Routine and manual | | Never worked and long term unemployed | | Not classified | |
|-------------------|--------------------------------|----|--------------|----|-----------------------|----|---------------------------------------------|----|----------------|----|
| | Population | % | Population | % | Population | % | Population | % | Population | % |
| White | 10,644,800 | 27 | 6,501,400 | 17 | 11,364,700 | 29 | 1,237,200 | 3 | 9,606,600 | 24 |
| Mixed | 86,600 | 26 | 45,300 | 14 | 78,000 | 24 | 28,400 | 9 | 92,400 | 28 |
| Asian | 340,800 | 21 | 240,900 | 15 | 377,900 | 23 | 256,300 | 16 | 411,500 | 25 |
| Black | 207,000 | 25 | 115,600 | 14 | 211,800 | 25 | 79,300 | 10 | 217,000 | 26 |
| Chinese and other | 95,400 | 25 | 55,900 | 15 | 71,200 | 19 | 37,000 | 10 | 122,700 | 32 |
| Total | 11,374,500 | 27 | 6,959,100 | 16 | 12,103,600 | 28 | 1,638,200 | 4 | 10,450,200 | 25 |

Notes: Population estimates are rounded to the nearest hundred.

Source: MIMAS (2010) *Casweb – 2001 census data for England, Wales, Scotland and Northern Ireland*. University of Manchester: Manchester. <http://casweb.mimas.ac.uk/>. Accessed January 2010.