Diseases and Different Ethnic Groups

The UK boasts a culturally diverse population with ethnic minorities accounting for 14% of the population in the 2011 census. This represented an increase in the percentage of ethnic members of the population which was around 9% in 2001 and 6% in 1991. Caution is needed when making direct comparisons between censuses as there have been changes in questions and tick boxes which encourage the recognition of diversity. However, there is no doubt that the 'mix' is changing. In the 2011 census, the largest ethnic minority box ticked was Indian, followed by Pakistani, Black African and Other Asian.

Across England and Wales, London is the most ethnically diverse area and Wales the least.

Ethnicity and health

Population groups with differences determined by culture, religion or ethnicity also show differences in terms of illness behaviour and beliefs. More work is required to understand these reasons.

Population groups also differ genetically, so that some diseases are more prevalent in certain ethnic groups. This includes conditions such as sickle cell disease and Creutzfeldt-Jakob disease which are well described. It also includes altered prevalence and patterns, in different ethnic groups, of common conditions such as cardiovascular disease (CVD) and type II diabetes.

Health inequalities are seen between ethnic groups for a number of reasons. These are covered in more depth in the separate Ethnicity and Health article but may include:

- Difficulties in accessing healthcare in an appropriate language and cultural context.
- Medication research is not always generalisable to ethnic minorities and there are often significant differences not only in disease patterns, as discussed in this article, but also in responses to therapy.[2, 3]

Awareness of these differences allows focused delivery of health promotion and healthcare so that, for example, programmes to increase the detection of CVD and its risk factors in ethnic groups can be focused and effective. Most surveys have examined conditions such as hypertension, diabetes mellitus and coronary heart disease.

A large proportion of current and historical research examines population cohorts that do not include enough ethnic minority patients. This has meant that results may not necessarily correlate to patients from ethnic groups.[4]

This article will focus on the results of health surveys on ethnic minority groups in England.

Health Survey for England

This is a major monitoring tool which has run annually since 1991. It looks at the Nation's health and is used to enable planning and policy decisions. Each year there is a particular focus on a population group, disease or condition.

In 1999 and 2004 the Health Survey for England performed surveys on ethnic minority groups.[5, 6] Participants were randomly chosen and then visited by a researcher who obtained survey results. The studies included adults and children and various parameters were discussed. Following the visits, a nurse visited some of the participants and undertook various tasks - eg, venepuncture, urinalysis.
Ethnic health inequalities

Health inequalities are differences in health status that are driven by inequalities in society. Health is influenced by many different factors - eg:

- Lifestyle - material wealth, educational attainment, aspirations and expectations.
- Job security, housing conditions.
- Genetic susceptibility and inheritance.
- Discrimination - direct and/or indirect - in access to services.
- Non-shared language of consultation between healthcare professional and patient.
- Cultural differences and expectations between healthcare providers and some groups, affecting level of shared understanding.
- The need for translation services (and the difficulties inherent in this).
- Expectations of healthcare and of disease.

Health inequalities represent the cumulative effect of these factors. They can be passed on from one generation to the next through maternal influences on baby and child development.

Patterns of ethnic variation in health are extremely diverse and many overlapping factors contribute to their expression.[7] There is greater variation in the rates of some diseases by ethnicity than by other socio-economic factors. Large-scale surveys like the Health Survey for England show, for example, that black and minority ethnic groups as a whole are more likely to report ill health and that ill health among black and minority ethnic people starts at a younger age than in White British groups.

General health and social factors

The 2004 survey reported the following:[5, 6]

- Ethnic differences in health vary across age groups: the greatest variation by ethnicity is seen among the elderly.
- Ethnic differences in health may vary between generations. For example, in some black and minority ethnic groups, rates of ill health are worse among those born in the UK than in first-generation immigrants.
- Pakistani, Bangladeshi and Black-Caribbean people report the poorest health:
  - Pakistani women and Bangladeshi men were more likely to report the presence of a long-standing illness which limited them on a daily basis. These figures had increased in Pakistani women by almost 10% in 2004 compared with the 1999 survey.

- All ethnic minorities reported a severe lack of support, particularly people of Pakistani and Bangladeshi origin.

Patterns of ethnic inequalities in health vary from one health condition to the next. For example:

Cardiovascular disease (CVD)

- In all minority ethnic groups there was a general age-related increase in the prevalence of CVD conditions including diabetes.
- In most CVD areas (excluding diabetes) Chinese men and women had lower rates than the general population.
- In most CVD areas South Asian groups showed higher rates, with Pakistani and Bangladeshi groups worse than Indian groups.
- South Asian men are 50% more likely to have coronary heart disease than men in the general population. Bangladeshis have the highest rates (followed by Pakistanis, then Indians and other South Asians).
- Black Caribbean men had lower prevalence of angina and heart attack than the general population.
- Risk factors where age-adjusted risk ratios were higher in those with CVD than in those without included raised waist-hip ratio (except Bangladeshi men), raised BMI (Indian and Bangladeshi women only) and hypertension.
- When all of these were taken into account simultaneously the differences in prevalence between each minority ethnic group and the general population were not statistically significant.
Hypertension
Hypertension is more frequently encountered in ethnic minorities but differences do not reach statistical significance.\textsuperscript{[6]} Average blood pressure is different in the differing ethnic groups. There are also differences in the development and presence of target organ damage - for example, Black Caribbean patients have an increased prevalence of left ventricular hypertrophy (a predictor of mortality and morbidity independent of other risk factors).\textsuperscript{[8]}

Diabetes
The 1999 and 2004 surveys both reported that the prevalence of diabetes is greater in men than in women. The observed prevalence was markedly higher in Bangladeshi, Pakistani, Indian and Black Caribbean patients. For the Bangladeshi and Pakistani population this represents an almost five times higher prevalence than the general population. There were no significant changes between the prevalence rates when the two surveys were compared. The prevalence of diabetes mellitus in Black Caribbean men was also similar to that of those of Indian ethnicity. However, Black Caribbean women were noted to have the highest prevalence of diabetes mellitus amongst all women.

- Pakistani and Bangladeshi patients of both sexes showed rates of diabetes over five times higher than the general population and Indians almost three times higher.

Cancer
- Overall, cancer rates tend to be lower in black and ethnic minority groups.
- Those from South Asia, the Caribbean and Africa have lower mortality rates from lung cancer because of lower levels of smoking.
- The highest mortality is in people from Ireland and Scotland.

Mental health
- Ethnic differences in mental health are controversial.
- Black and ethnic minority patients are more likely to receive a diagnosis of mental illness than the White British. Studies show up to seven times higher incidence of psychosis among Black Caribbean people than among the White British.
- Prevalence of mental illness in the community shows smaller ethnic differences.
- There is evidence of ethnic differences in risk factors for mental illness, such as discrimination, social exclusion and urban living.
- There is also evidence of differences in treatment. Black Caribbean and African people are more likely to enter psychiatric care through the criminal justice system than through contact with the health services.

Cerebrovascular disease
- Black Caribbean men have a much higher prevalence of stroke - the risk is almost two thirds higher than the general population. Indian men also have a higher risk of stroke (relative risk 1.42).\textsuperscript{[5]} High rates of stroke were also seen in Bangladeshi women, Pakistani women and Irish men.
- Research from the USA suggests that ethnic minority patients have more severe strokes and may do less well in rehabilitation.\textsuperscript{[9]}
- The prevalence of stroke was also lower in Chinese men and women, especially in the latter group.

Increased prevalence of cardiovascular disease in ethnic minority groups: underlying factors
The high levels of cardiovascular mortality and morbidity in ethnic minority groups has been the focus of several studies. Contributing factors include:

- Risk factor clustering (see below) in some minority groups increases the prevalence of metabolic syndrome.\textsuperscript{[10, 11]}
- Greater susceptibility.
Fewer competing causes of death (eg, cancer rates are lower in some groups). This is supported by studies that have shown higher fasting insulin levels in South Asian Indians when compared with Caucasians, supporting the presence of differences in insulin metabolism.\(^{[12]}\)

Observed differences may also indicate that ethnic minorities are under-investigated and under-treated.\(^{[13]}\)

**Hyperlipidaemia**

Ethnic differences in lipid profiles may account for some variation:

- Black Caribbean populations appear to have higher high-density lipoprotein (HDL) fractions and lower triglycerides.
- Pakistani and Bangladeshi men are more likely to have low HDL levels.
- Plasma lipid concentrations are greater in patients of South Asian descent.

It is postulated that these changes probably represent genetic variations - eg, polymorphism of hepatic lipase genes.\(^{[14, 15, 16]}\)

**Obesity**

In the 1999 UK health survey, obesity and raised waist-hip ratio were higher in those with CVD, and more so in Indian and Bangladeshi women.\(^{[5]}\)

**Smoking**

Smoking levels in men of ethnic minorities are similar to the general population with a reduction in smoking rates since 1999. The use of chewing tobacco is higher in people of Bangladeshi background but the rates appeared to have decreased in the 2004 survey. A 2015 study raises the possibility that metabolism of nicotine could vary by ethnic group.\(^{[17]}\)

**C-reactive protein (CRP)**

Some studies suggest that levels of CRP are higher in ethnic groups (CRP has been independently associated with CVD).\(^{[10]}\) However, the 2004 survey did not report significant differences in CRP in ethnic minorities compared with the general population.

**Nitric oxide**

Genetic differences resulting in changes in the bioavailability of nitric oxide, a potent vasodilator, could be significant.\(^{[18]}\)

**CVD risk calculation**

The Framingham study provided the Framingham risk function to determine the cardiovascular risk in a patient based on their risk factors. However, the cohort of patients has been mainly Caucasian, making it difficult to correlate to ethnic minority groups.\(^{[19]}\)

A risk calculator for determining the 10-year risk of coronary heart disease and CVD for ethnic minorities based on the Framingham study has been developed. This replaces previous JBS guidance (which recommended multiplying calculated risk by 1.5 in patients from black and minority ethnic groups).\(^{[4, 20]}\)

**Approach to reducing coronary heart disease and cardiovascular disease in ethnic minorities**

Management of ethnic minority patients should follow the same approach as management of all patients: to watch for and appropriately manage risk factors, to detect disease early and to offer education and support in beneficial lifestyle choices.

- It is important to factor ethnicity into that risk assessment.
- All patients should have their blood pressure, weight and height checked - these are easy to perform and non-invasive.
Evaluate and manage/advise on:
- Lifestyle factors - smoking, physical inactivity, unhealthy diet.
- Hypertension.
- Obesity.
- Adverse lipid profile.
- Consider metabolic syndrome.
- Impaired glucose tolerance.
- Hypercoagulability.
- Age, gender, family history, ethnicity.

Evaluate all patients for the presence of multiple risk factors and use the risk calculator to determine the cardiovascular risk.

Patients with a strong family history of diabetes, hypertension and hyperlipidaemia should have these parameters regularly checked - eg, annually.

Reinforce the importance of lifestyle modifications, even if risk is low - eg, weight reduction, salt reduction, healthy low-fat diet and increased exercise.

The above measures may by enhanced by dedicated services available in the patient's language - eg, Gujarati smoking cessation service.

Patients should be offered health education opportunities where available - eg, community ethnic diabetes mellitus meetings with professionals and patients. Know what services are provided in your area.

The British Heart Foundation (BHF) recommends that practices keep a register with ethnic codes and diseases.

Ethnic differences in perinatal outcomes are not included in this article. However, studies suggest that there are significant differences and the findings are supportive of the findings above. A large study in the USA in 2012 (>32,000 births) found that perinatal outcomes in women with gestational diabetes differ by ethnicity and may relate to sociocultural differences, genetic variability, comorbidities and variation in access to (and quality of) prenatal care.\[21\]

Further reading & references

5. Cardiovascular disease: prevalence and risk factors; Health Survey for England - The Health of Minority Ethnic Groups, 1999 (archived content)
7. Ethnicity and Health; Parliamentary Office of Science and Technology, Jan 2007