

Book summary

MIGRATION, ETHNICITY, RACE AND HEALTH

A distillation of the book *MIGRATION, ETHNICITY, RACE AND HEALTH IN MULTICULTURAL SOCIETIES*, OXFORD UNIVERSITY PRESS

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ABSTRACT

As a migratory, social and recently evolved species, *Homo sapiens* is genetically highly uniform. Between-population genetic differences usually relate to environmental adaptations, for example, in skin colour. Humans are culturally heterogeneous, for example, in their food preferences, dress codes and languages. Humans differentiate individuals and groups using concepts such as race and ethnicity. These concepts overlap, although race places more emphasis on

physical features and ethnicity on cultural ones. These concepts have become especially important because of international travel, migration and globalization. Migration status, race and ethnicity are widely used in demographic, health and health-care databases, and show important group-level differences in health status and health-care utilization and quality. Some differences are clearly inequities, that is, there is an element of injustice. Therefore, race and ethnicity

have become integral to the inequalities and inequities (or disparities) agenda. Race and ethnicity tie in with migration status, nationality, indigenous (aboriginal) status and racism. International laws and policies promote antiracism and antidiscrimination stances. Public health initiatives play a vital role through promoting epidemiologically based needs assessment, priority-setting and high-quality research to improve the health of minority and majority populations alike.

Keywords: ETHNIC, ETHNICITY, RACE, RACISM, INEQUALITIES, CULTURE, MIGRATION, MIGRANT

INTRODUCTION

Humans comprise a single species with remarkably small genetic differences between groups (1–3). Among the concepts that human groups use to differentiate themselves, race and ethnicity are particularly relevant to medical and public health sciences (4). Humans can differentiate between individuals and groups by recognizing race-related physical features, for example, from early infancy (5,6). International migration, by bringing together people from diverse nations with varying physiques, religions, languages and traditions to create multiracial, multiethnic societies, has made race and ethnicity of great contemporary and global importance (7–9). (In this review, I will consider groups based on migration status, race and ethnicity but will sometimes refer to them collectively as ethnic groups or minorities).

OBJECTIVES, SOURCES, METHODS OF SELECTION, COMPILATION AND INTERPRETATION OF DATA IN THIS REVIEW

The objective of this review is to summarize my book, *Migration, ethnicity, race and health in multicultural societies* (1,2). This book, especially a previously abridged version, was the source of all materials (10). The review is, therefore, based on traditional academic principles of examining research, policy and practice literature together with searching relevant websites, particularly those reporting on international data collection systems and governmental policies and priorities. The interpretation is based on public health and epidemiological principles.

DEFINITIONS OF RACE AND ETHNICITY, THEIR INFLUENCE ON PUBLIC HEALTH VARIABLES AND AN EVOLUTIONARY MODEL RELATING TO MIGRATION

Traditionally, the concept of race has been used to classify populations into subgroups based on biological factors such as skin colour, facial shape and hair type. Your race is the group you belong to, or are perceived to belong to, given such factors (2). In the past, racial classifications based on biology have been abused, notably in the Nazi Final Solution (1,2,11). However, the idea of race is changing to incorporate social factors and a shared history, and hence is converging with ethnicity (2,12). The new genetic technologies are also leading to a reappraisal of the biological race concept (3,13). The concept of race has come under attack because of its historical harms (11) but remains important in public health, partly to redress such harms, especially racism (14). Racism is the view that some groups are superior to others because of their race (or related characteristics such as ethnicity, religion and migration status). Racism is used to give advantages to these ostensibly (but not actually) superior groups.

The notion of ethnicity depends on cultural and social factors such as family origin, language, diet and religion to classify humans. Your ethnicity is the group you belong to, or are perceived to belong to, in the light of such factors (2). Family origin is based in ancestry, so race and ethnicity share this quality. In Europe, the concept of ethnicity has largely replaced the concept of race (1). Internationally, however, race and ethnicity are often used synonymously (4).

The concepts of race and ethnicity are related to, but separate from, nationality (which is based on citizenship and/or passport) and country of birth, but the latter are sometimes used as proxies (1,2,15). Race, ethnicity and their proxies are central to epidemiology and public health (16), for the reasons given in Table 1.

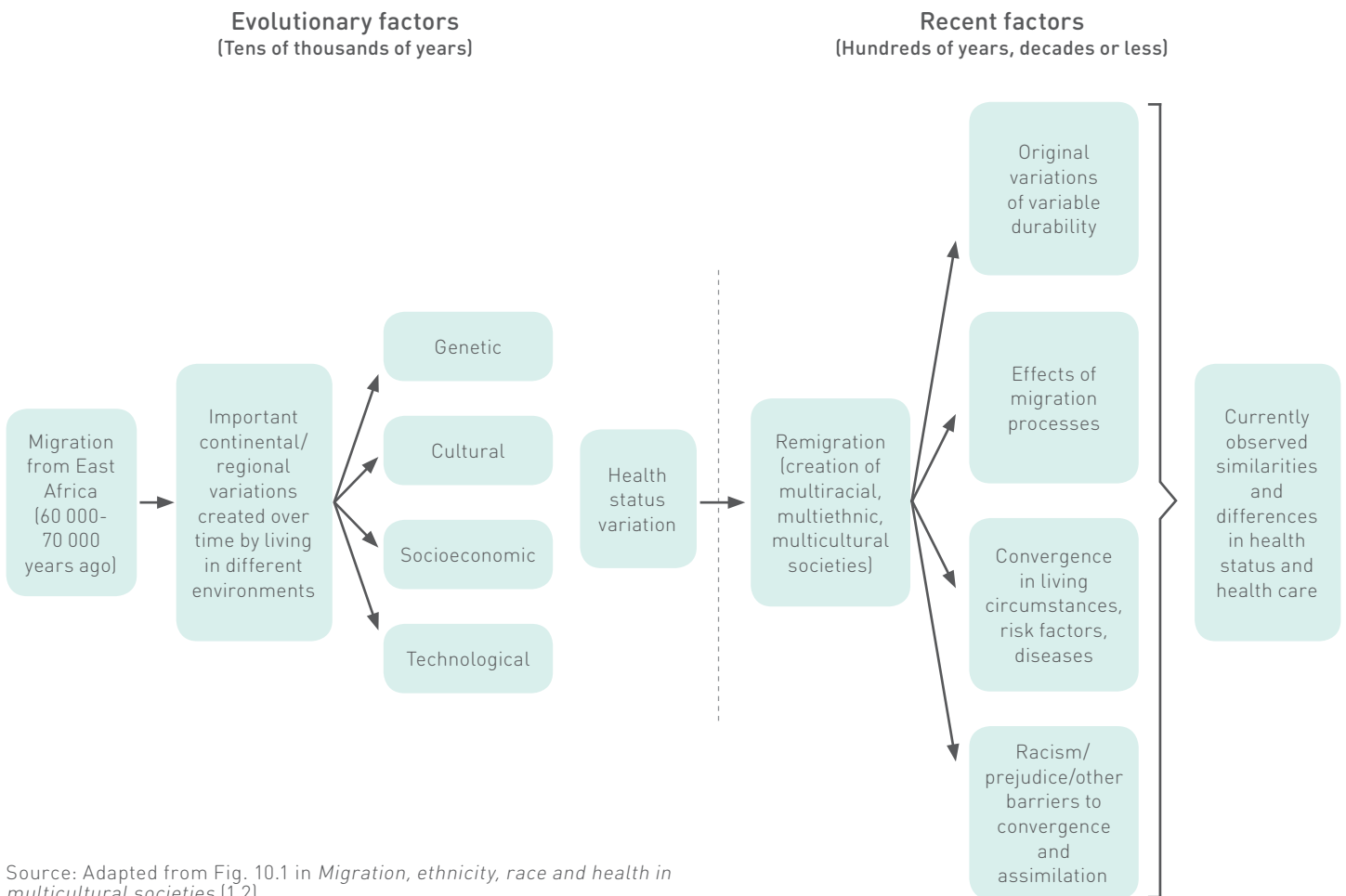
TABLE 1. ETHNICITY (OR RACE OR COUNTRY OF BIRTH) AS AN EPIDEMIOLOGICAL VARIABLE

Selection criteria for a good epidemiological variable	Relationship of ethnicity (or race or country of birth) to these criteria
Impacts health at the individual and population levels	Ethnicity has a powerful associated influence on health
Accurately measurable	In most populations, ethnicity is difficult to assess (not true for country of birth)
Differentiates populations in their experience of disease or health	Huge differences by ethnicity are seen for many diseases, health problems and factors that cause health problems
Differentiates populations in some underlying characteristic relevant to health e.g. income, childhood circumstance, hormonal status, genetic inheritance or behaviour relevant to health	Differences in disease patterns in different ethnic groups reflect a rich mixture of environmental factors and may also reflect population changes in genetic factors, particularly in populations in which migration has been high
Generates testable aetiological hypotheses, and/or helps in developing health policy, and/or helps in planning and delivering health care, and/or helps in preventing and controlling disease	It is hard to test specific hypotheses because there are so many underlying differences between populations of different ethnicity
	Ethnic differences in disease patterns profoundly affect health policy
	Knowing the ethnic structure of a population is critical to good decision-making
	By understanding the ethnic distribution of diseases and risk, preventive and control programmes can be targeted to appropriate ethnic groups

Source: Adapted from Table 1.3 in *Migration, ethnicity race and health in multicultural societies* (1,2).

The left half of Figure 1 shows how migration from East Africa led to differentiation among human populations. The period since migration from Africa, 60 000–70 000 years, was long enough to cause subgroup differentiation but not to create new human species. Immigrants arrive with the health status variations of their place of origin (whether effectively permanent, as in genetic variations, or highly

FIG. 1. A MODEL LINKING EVOLUTIONARY AND CURRENT FORCES THAT PRODUCE VARIATIONS IN HEALTH STATUS AND HEALTH CARE BY MIGRATION STATUS, RACE AND ETHNICITY



Source: Adapted from Fig. 10.1 in *Migration, ethnicity, race and health in multicultural societies* (1,2).

changeable, e.g. low blood pressure). Effects of the migration process (e.g. selection effects), the journey, the new life circumstances, discrimination at the new settlement and other factors all influence the health status of migrants (see the right half of Figure 1).

The concepts of race and ethnicity are important for demonstrating inequalities (differences) and inequities (implying an element of injustice – called “disparities” in the United States of America) (8,12,17). The analysis of such inequalities can provide insight into the forces causing them and hence to appropriate interventions. Such work can, however, lead to stereotyping, stigma and racism. Some potential problems and benefits are shown in Table 2.

CLASSIFICATIONS TO UNDERPIN DATA COLLECTION

Although it is necessary to create migration status, ethnic and racial classifications and categories, they are pragmatic and designed to meet the perceived needs of particular populations at particular places and times (17,18). The categories must be meaningful and acceptable to both those creating and using the classification and those who are classified. Most classifications are currently designed for self-reporting, now considered best practice, whereas in the past race was usually assigned by observers. Sometimes, data are obtained from official records, especially for migration status.

Such classifications allow important analyses in population sciences (1,2,8,19,20). Although several classifications are usually available, the one used in

TABLE 2. POTENTIAL PROBLEMS AND BENEFITS OF RACE AND ETHNICITY IN HEALTH SCIENCES

Issue	Potential problems	Potential benefits
Credibility	Supports scientifically difficult concepts that have previously been abused	Utilizing concepts will lead to the development and improvement of health sciences and to health improvement
Division of society	Reducing social cohesion by emphasizing differences and creating a sense of inferiority or superiority	Helping to heal existing social divisions by acknowledging and working on differences, as well as demonstrating similarities
Racism	Provides information that can be abused by those who wish to demonstrate the inferiority or superiority of particular groups	Information can combat past injustices and guide future actions to prevent racism
Ethnocentricity	Sets a standard, usually based on the majority population, that may be inappropriate for a particular ethnic group	By demonstrating that in some respects ethnic minority populations have better health, more challenging standards can be set for the whole population, including the majority population, e.g. the standard is the population with the best health
Emphasis on problems	Stigmatizing and stereotyping minority populations by focusing on conditions where their health is worst	By showing that in some respects their health is better or no worse than that of the majority, research can counteract existing stigmas and stereotypes about minorities
Scientific advances	As in the past, science might be led to make unsound inferences and into unethical practices	If dividends from studying race and ethnicity can be realized, important advances in population health could be achieved
Development of health services	As a result of faulty information or interpretation, health services may veer away from true needs	With the appropriate data, services might better adapt to meet needs
Individual clinical care	Clinicians might be misguided by generalities, stereotypes and misleading research and scholarship	Armed with a better understanding of race and ethnicity, clinical care might become more effective
Attitudes to immigration	Adverse data on health status or health care utilization may create/perpetuate negative attitudes to immigration	By showing immigrants' contributions to health-care delivery or the health of the nation, the benefits of immigration may become clearer

Source: Adapted from Table 1.5 in *Migration, ethnicity race and health in multicultural societies* [1,2].

the census (or equivalent population registries) usually dominates (1,2,15,17,21).

CHALLENGES OF COLLECTING AND INTERPRETING DATA

Data systems need to be designed to record, retrieve and analyse data on relevant variables including racial and/or ethnic group, migration status, language preference, religion and dietary needs. People setting up health databases and research studies need to choose which aspects of migration status, race and ethnicity are to be captured, the method of data

collection, and concepts and terminology. They must also ensure mutual understanding between data providers and data holders. There are three main approaches to data collection: (i) self-assessment; (ii) assessment by another based on examining records; and (iii) assessment by another based on observation (see Table 3). The last is not recommended. Major sources of relevant data include censuses, population registers, death and birth certificates, health-care records, and disease registries. As these datasets often do not include race, ethnicity or migration status, data linkage is a promising means of adding such variables from other sources (22).

TABLE 3. MAIN METHODS OF ASSIGNING MIGRATION STATUS, RACE OR ETHNICITY

Skin colour/physical feature(s)
Country of birth of self or parents/grandparents
Name analysis
Family origin, and ancestry or pedigree analysis
Self-assessed ethnic or racial group
Self-reported migration status details: length of residence, country of birth or origin, whether asylum seeker, refugee or undocumented migrant
Source: Adapted from Table 3.3 in <i>Migration, ethnicity, race and health in multicultural societies</i> (1,2).

Users need to derive valid explanations for differences and similarities, or at least valid questions that guide interpretation. A conceptual framework for interpretation of differences includes the following factors: data and system error; random error; bias in data collection; and differences in socioeconomic circumstances, lifestyle and other cultural and genetic factors.

SOCIETAL RESPONSES

Generally, socially diverse societies are conscious that the health status and health-care needs of their populations vary by migration status and racial or ethnic group. Societal responses range from merely studying the differences, blaming the minority population for their health problems and even excluding them from services to setting up special initiatives, adapting services to meet their needs, and creating a policy of equality and equity of service to meet need (23). The response depends on the social context and on political and public views about migrants, race and ethnicity, as discussed here for the United Kingdom, the Netherlands and Hungary.

In the United Kingdom, the health focus has been on immigrants and their descendants by primarily utilizing the concept of ethnicity. Immigrants are associated, sometimes wrongly, with raising the risk to the wider society of infectious diseases and environmental hazards; this kind of perception is harmful. Since the 1970s, there has been a close study of variations in disease patterns, followed by a policy response, backed by strong legislation, to tackle

health problems seen in excess in minority groups (23). The 1990s and early 21st century saw the rise of a social justice agenda accompanied by powerful antidiscriminatory legislation to promote equality. Race (including ethnicity, religion and migration status) is one of nine legally protected characteristics in the United Kingdom's Equality Act 2010.

The Netherlands became one of the world's most diverse multiethnic societies in the late 20th century. It has institutionalized the use of country of birth as the primary proxy measure of ethnicity (15). However, its policy response has been unstable in the light of political change. The current attitude is that while special efforts may be required for foreign-born people, rapid integration and assimilation should occur to ensure that the descendants of migrants require no special services. Research in The Netherlands is advanced, including the development of major cohort studies (24).

Hungary has historically been a multiethnic country and has a tumultuous past. One of its great challenges is to translate the ideal of equality – enshrined in its constitution and laws – to its Roma population (25). This ethnic minority group has been settled in Hungary for centuries, with its roots going back to the 14th or 15th century. The Roma population is comparatively very poor, with low levels of education and employment, and a multiplicity of health challenges, including a life expectancy 10 years lower than that of the non-Roma population. However, the vision in Hungary is a grand one and the result will be of great significance for Europe.

The variety of responses in these countries is striking. Nonetheless, a pattern is discernible: first comes an awareness of health problems, especially a risk of infectious disease; second comes the formal study of health status and health care by migration status, ethnicity or racial group; third, there is articulation of policy and plans, sometimes backed by legislation; fourth, we see a move from policies of exclusion of minorities to the promotion of the welfare of minorities; fifth, there are specific actions to redress inequities; and, finally, there is an attempt to adapt general services to meet needs. Spurred by rising global and national movements for universal human rights in the late 20th century and a realization that immigration is vital to their economic and

demographic health, many countries are making equity of health status and health care a central focus (8).

Data must be collected within international ethical and legal frameworks that safeguard the human rights of minority and majority populations alike (26). The goals of equality and equity, and monitoring progress towards these goals, cannot be achieved without data on migration status, race or ethnicity, as recognized by the WHO Regional Office for Europe in 1983 (27) and re-emphasized in the global consultation of WHO and the International Organization for Migration (8).

ASSESSING HEALTH AND HEALTH-CARE NEEDS USING QUANTITATIVE AND QUALITATIVE DATA

A health needs assessment is an overview of data on a population to improve health and health care. Health needs assessment in racial and ethnic minority groups is sometimes problematic because of the lack of comparable, high-quality data at the level of subgroup detail required (28,29). Databases utilizing broad racial or ethnic categories (or proxies such as country of birth) are, however, available in most European countries (28).

Needs assessment for minority populations starts by examining health status, disease patterns and health-care utilization within each group. This is the absolute risk approach (1,2,16). The findings are then compared with those of the whole population (usually) or the majority group. An alternative (rarely used) approach is to set the comparison against the group with the most desirable level of the health indicator under study. These comparative approaches comprise the relative risk approach (16). Qualitative data enrich and help validate the quantitative analysis by giving needs assessors access to opinions, perceptions, beliefs, attitudes, self-reported behaviour and case histories (1,30).

Health needs assessments have shown that commonly held views on the needs of minorities are often erroneous (29), for example levels of immunization are sometimes high (not low) (31), life expectancy may

be greater than in the population as a whole (32) and health education materials may bear little relation to disease patterns (33). However, some generalizations hold: health needs vary substantially by group; minority groups are sometimes, unsurprisingly, better off in health status and even in health care; service quality, including for preventive health issues and face-to-face communication, is usually worse for minority groups; and needs as articulated by minority groups mostly focus on communication, information, religious requirements, dietary preferences and informed consent (29). Since health needs assessment is an intensive and costly process, and not always achievable, some principles are important (shown in Box 1) (1,2).

BOX 1. TEN PRINCIPLES OF HEALTH NEEDS ASSESSMENT

1. Avoid a piecemeal approach to tackling minority health needs in which so-called migrant-, race- or ethnic-specific health topics are tackled one by one. A balanced overview is needed (29).
2. Base the needs assessment on ranking causes using case numbers and disease rates (Table 4, columns 2–4).
3. Refine understanding by looking at comparative indices, which will focus attention on inequalities and inequities (Table 4, columns 4–5).
4. Interpret quantitative data in the light of qualitative findings.
5. With due emphasis on social and economic deprivation as explanatory factors, interpret the observed differences.
6. Be aware that inferences of biological differences between groups may be particularly prone to error and misinterpretation, and may harm perceptions of minority groups.
7. Make a judgement, preferably in consultation with the minority populations concerned, on how the data can be best used to improve the health and health care of majority and minority groups alike.
8. Minority ethnic groups must not be excluded from, or inhibited from, using major public health and health-care initiatives, even if segregated or special services are set up.
9. The needs of minority groups should be examined and met simultaneously with the rest of the population, not deferred until a later date to be handled as a separate matter.
10. All public health policies and plans should explicitly describe how the needs of minority groups are to be met.

TABLE 4. THE STANDARD TABLE CATEGORIES FOR ASSESSING THE PATTERN OF DISEASE, PARTICULARLY FOR NEEDS ASSESSMENT PURPOSES

Disease or condition	Number of cases	Rate	Rank position by number of cases or rate	SMR/relative risk	Rank by SMR
SMR: standardized mortality ratio. <i>Inequalities, inequities and disparities in health and health care</i>					
Source: Adapted from Table 5.8 in <i>Migration, ethnicity, race and health in multicultural societies</i> (1,2).					

BOX 2. MAJOR FACTORS GENERATING OR INFLUENCING HEALTH INEQUALITIES BY MIGRATION STATUS, RACE OR ETHNICITY

- Cultural practices (e.g. taboos on tobacco, alcohol and contraception), many of which are generated by religious and spiritual beliefs that differ between populations;
- Social, educational and economic status, e.g. knowledge of biology and causes of ill health, languages spoken and read, qualifications that are recognized, and occupational opportunities;
- Environmental factors before and after migration, e.g. climate, housing and air quality;
- Lifestyle, e.g. behaviours related to exercise, alcohol, diet;
- Accessing, and concordance with, health-care advice (e.g. willingness to seek social and health services and adhere to advice, and use of so-called complementary or alternative methods of care), including from the health systems of the country or origin; and
- Genetic and biological factors, e.g. birth weight, growth trajectory, body composition, genetic traits and diseases.

Source: Adapted from Box 6.1 in *Migration, ethnicity, race and health in multicultural societies* (1,2).

Health status, disease occurrence and mortality patterns in populations are influenced by factors such as wealth, environmental quality, diet, behaviour and genetic inheritance (Box 2) (20,34,35). Therefore, it is unsurprising that there are stark health inequalities by migration status, race and ethnicity.

It is important to distinguish between the concepts of inequity and inequality. Inequity implies an inequality that is unfair or unjust, for example one arising from inadequate access to knowledge or services. Inequities are a primary target for action, particularly if effective interventions are available. In contrast, some inequalities, such as differences in the rate of skin cancer related to skin pigmentation, are not unjust.

Inequalities are demonstrable using virtually all classifications of migration status, race and ethnicity, and are usually sharpened by taking account of

population heterogeneity (e.g. by studying Indian and Pakistani groups separately and not when combined as South Asians) and examining men and women separately. The differences between such groups are often large, particularly for specific conditions, such as diabetes, stroke and bowel cancer. There may even be differences in general measures of health, such as life expectancy (32), although the latter has rarely been calculated. Identifying ethnic group inequalities could help in setting new, more demanding, targets. For example, the target for coronary heart disease mortality could be set at the low rate of the European-resident Chinese population (36), and that for bowel cancer at the low rate of European-resident South Asian populations (37).

PRINCIPLES FOR SETTING PRIORITIES

Priority-setting is a process for making rational choices from multiple options based on a health needs assessment. The public health sciences, particularly epidemiology, can underpin priority-setting. Quantitative and qualitative data on health status and service utilization by migrant and ethnic minorities are often available (though they may be crude). In contrast, relevant information on the cost and effectiveness of interventions is rarely available, posing a formidable challenge (2).

Priority-setting benefits from several principles, for example that the priorities are actions that maximally benefit the health of a population or subpopulation. Another principle is that the priorities of general society are of great importance to all its members. These general priorities need adjustment based on the health needs assessment of specific groups. Adjustments may be minor for long-settled communities and for minorities born or raised in the country. However, they may be substantial for others, such as recent migrants who do not speak the local

language, or those suffering racial discrimination or the consequences of torture. All health-care and public health policies and plans should explicitly state what the priorities are and how they differ for minority groups.

POLICY AND STRATEGY

Ideally, policies for the whole population would address the needs of minority groups in an integrated way, known as mainstreaming (2). However, mainstreaming may not happen for various reasons, including a lack of agreement on its importance, the complexity of relevant issues, a lack of expertise and time, and the constraints of publication space. Mostly, minority populations are expected to use the available services, although professionals delivering services tend to make some adjustments. Increasingly, we see two further responses: (i) setting up specialist services for minority groups but within the main service; and (ii) development of strategies to help reshape existing services to meet needs. The complete separation of services for minorities is currently not in favour.

For example, until about 1990 the United Kingdom policy response was intermittent and fragmented, comprising a mixture of stand-alone projects and modifications to mainline services. Progress has since been made on key requirements such as interpretation services and dietary needs in hospital (29). The Race Relations Amendment Act 2000 (now incorporated into the 2010 Equality Act), coupled with explicit or implicit policies from government health departments, drove more widespread changes based on a positive duty to promote racial equality (38). Such national initiatives are being translated, often with great difficulty, into local action plans and ultimately into local service changes.

While many policies, strategies and action projects exist, health services internationally have struggled with the challenge of equitable health care in multicultural societies. These struggles are especially seen in relation to undocumented migrants (also called irregular migrants), indigenous populations and long-established but culturally and socially distinct populations such as Roma. Policy ideals are constrained by a lack of funds, expertise and data, as well as ongoing political controversies about immigration, asylum, race equality and human rights.

Equity is increasingly the central focus of service delivery, with outcome measures of health-care delivery and its quality forming the benchmark. The achievement of equitable health status outcomes is seldom the goal. Policies and strategies to achieve better health for minorities are strengthened and sustained by their incorporation within a broader agenda for social justice and civil rights, and within wider policies to reduce inequalities.

RESEARCH AND RESULTING PERCEPTIONS ON HEALTH STATUS

Minority health is a beguiling research theme for several reasons: it often focuses on underprivileged groups; it is interesting and often unearths unusual results; differences between groups can be demonstrated with ease; and even small studies can yield robust significant and relevant results.

Research utilizing migration status, race and ethnicity is mostly interpreted to meet current goals of social equality and justice. Much past research was used to further previous social and political goals such as the continuation of slavery, the justification of Empire, the maintenance of social and material inequality (including apartheid), anti-immigration policies focused on those who were not northern Europeans, eugenics and the Nazi genocides (2,11). The most important lesson from this is that research into minorities should be done within an ethical framework emphasizing the benefit to all population groups. Researchers are developing consensus statements on how to achieve this (39). An explosion of research into the genetic and environmental basis of ethnic/racial variations is under way as virtually all societies become multiethnic through migration (4). Nonetheless, minority populations are underrepresented in major studies, especially cohort studies (40) and trials (41).

Researchers need to clarify how they are using migration status, race and ethnicity as variables, and how they are adapting their classifications and methods. Researchers should not always be constrained by pre-existing classifications designed for administrative purposes. Researchers

TABLE 5. CATEGORIZING AND ANALYSING THE FACTORS THAT MAY UNDERLIE AN EPIDEMIOLOGICAL VARIABLE: THE EXAMPLE OF STROKE

Category of potential explanatory underlying difference	Example of possible specific differences by migrant, racial or ethnic group	Implications for data collection
Biological	Unique variants of human genes or varying frequencies of such variants (polymorphisms) lead to differences in biochemistry or physiology	Collect biological data, including DNA, blood and other tissues
Coexisting diseases	One group may have a higher or lower incidence of another disease that raises or reduces the risk of stroke, e.g. diabetes	Collect clinical data, including appropriate diagnostic tests
Behavioural	One group may eat more fruit, vegetables and salads compared with another, and may smoke less	Collect data on behaviour relating to health
Social	Members of a group may spend less time with friends, family and other social network, which increases psychosocial strain	Collect psychosocial data as potential explanations
Occupational	The pattern of work, including likelihood of employment, hours worked and type of occupation, is substantially different	Collect data on employment history
Economic	Members of a group may earn less than average or have varying amounts of accumulated family wealth	Collect data on differences in income and wealth and their effect on lifestyle and stress
Health care	Members of a group may be treated differently to the expected standard by health-care professionals	Collect data on the quality, quantity and timing of health-care interventions

Source: Adapted from Table 9.2 in *Migration, ethnicity, race and health in multicultural societies* (1,2).

BOX 3. SOME CHALLENGES FOR EPIDEMIOLOGICAL RESEARCH ON ETHNICITY, RACE AND HEALTH

- Including minorities in research and analysing data by migration status, race or ethnicity;
- Clarifying the purpose of the research;
- Defining concepts related to migration status, race and ethnicity that are internationally agreed;
- Defining precise terminology and migrant group/ethnic/racial classifications, and studying how these have been used;
- Recognizing heterogeneity within both minority and majority groups;
- Identifying representative populations;
- Ensuring comparability of populations that are to be compared (this especially requires socioeconomic data over the life-course);
- Avoiding misinterpretation of differences due to confounding variables;
- Accurately measuring the denominators and numerators when calculating rates;
- Ensuring good quality data, particularly for cross-cultural comparability;
- Maximizing completeness of data collection;
- Pinpointing the specific genetic basis of genetic hypotheses;
- Making a properly argued interpretation of associations as causal or non-causal;
- Maximizing the validity and generalizability of research;
- Presenting research to achieve benefits for the population studied and avoid stigmatization and racism; and
- Ensuring appropriate action is taken following the research that, ideally, benefits the entire population.

Source: Adapted from Box 9.5 in *Migration, ethnicity, race and health in multicultural societies* (1,2), and originally published in Bhopal (2003) (42).

knowledgeable about the minority groups under study are more likely to be trusted and thus more likely to achieve high response rates and informed consent, and to interpret data accurately.

There are numerous challenges in epidemiology on migration status, race and ethnicity (see Box 3). One of the greatest challenges is to do good work in the light of inherent complexity and amidst controversy and criticism. There is potential for causal understanding through in-depth investigation into and explanation of migration status, racial and ethnic variations (see Table 5). Improvements will come from conceptual openness, using explicit and defined terminology, and solving fundamental issues such as matching denominators and numerators and ensuring representativeness of the population, comparability of subgroups and validity of the measurement tools.

For many reasons, morbidity and mortality rates are lower in minorities but these gain little attention. The resulting perception that the health of minority groups is poor can augment the belief that immigrants and racial or ethnic minorities are a burden. The perception of poorer health arises from a focus on those differences where the excess of disease is in the minority population. It is naive to believe that the mere demonstration of inequalities by migration status, race or ethnicity will narrow them. The study of racism is important but relatively neglected (4). Racism is undoubtedly a difficult subject to study in the health arena, but there is also a reluctance to take it on, although less so in the USA than in other places (including Europe) (43,44).

CONCLUSIONS

The ethical justification for collecting data by migration status, race and ethnicity is health improvement. When used responsibly, the concepts of migration status, race and ethnicity have potential utility in public health, health-care, clinical care and medical science (2,29,45), but used unwisely they can be damaging (11). Stringent attention to the underlying theory and principles of ethics and justice is essential as the primary safeguard against harm.

Data can feed into needs assessment, priority-setting, the inequalities debate, policy and strategy making, and scholarship and research. There is a virtuous cycle around data: the more they are used, the more enthusiasm there is for their collection and for improving data systems. Data also improves services directly through better decision-making and indirectly through the motivating effects of monitoring and evaluation on improving performance.

Interventions utilizing migration status, race and ethnicity need to be carefully evaluated to judge the likely cost-benefit balance. In a political environment where anti-immigration sentiment is high, the use of migration status, race and ethnicity indicators may be difficult and even counterproductive. A social milieu favouring equality and the values of diverse societies is a necessary adjunct to law. Public health should use migration status, race and ethnicity concepts combined with data to improve population health simultaneously and equitably in both minority and majority populations.

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