

The Concept of Race and Health Status in America

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Synopsis

Race is an unscientific, societally constructed taxonomy that is based on an ideology that views some human population groups as inherently superior to others on the basis of external physical characteristics or geographic origin. The concept of race is socially meaningful but of limited biological significance. Racial or ethnic variations in health status result primarily from variations among races in exposure or vulnerability to behavioral, psycho-

social, material, and environmental risk factors and resources.

Additional data that capture the specific factors that contribute to group differences in disease must be collected. However, reductions in racial disparities in health will ultimately require change in the larger societal institutions and structures that determine exposure to pathogenic conditions. More attention needs to be given to the ways that racism, in its multiple forms, affects health status. Socio-economic status is a central determinant of health status, overlaps the concept of race, but is not equivalent to race. Inadequate attention has been given to the range of variation in social, cultural, and health characteristics within and between racial or ethnic minority populations. There is a growing emphasis, both within and without the Federal Government, on the collection of racial or ethnic identifiers in health data systems, but noncoverage of the Asian and Pacific Islander population, Native Americans, and subgroups of the Hispanic population is still a major problem. However, for all racial or ethnic groups, we need not only more data but better data. We must be more active in directly measuring the health-related aspects of belonging to these social categories.

IN 1900, THE LIFE EXPECTANCY AT BIRTH in the United States was 47.6 years for whites and 33.0 years for nonwhites, who were mainly blacks; by 1990, the comparable numbers were 76.1 years for whites and 69.1 years for blacks (1). Thus, during this century, substantial progress has been made in improving the health status of both blacks and whites, but blacks continue to bear a higher burden of death, disease, and disability.

The report of the Secretary's Task Force on Black and Minority Health documented that racial and ethnic populations other than blacks also experience poor health status compared with the white population (2). The report used the concept of excess deaths to denote the difference between the actual number of deaths in a minority population and the number of deaths that would have

occurred if the mortality experience of that group were the same as among the white population. Excess deaths of those younger than 70 years were 42.3 percent of deaths among blacks, 14 percent for the Spanish surnamed population of Texas, 2 percent among Cuban-born persons, 7.2 percent for those Mexican-born, and 25 percent for American Indians. The rate of excess deaths was particularly high, 43 percent, for American Indians younger than 45 years.

There were no excess deaths for the Asian and Pacific Islander (API) population, indicating that that group had a healthier mortality profile than all other racial or ethnic groups, including whites. However, some specific subgroups of the API population experience higher rates of morbidity and mortality for selected conditions. Compared to

whites, Native Hawaiians, for example, experience excess deaths from heart disease, cancer, diabetes, infant mortality, and unintended injury.

How and why these large disparities persist is not clearly understood. Although we know much about the magnitude of racial or ethnic differences in health, we largely are unaware of the causal dynamics that produce the observed disparities. An understanding of the determinants of the differential distribution of health problems among racial or ethnic groups is a prerequisite to the development and direction of effective programs and services to address them. Advancing our knowledge in that area is contingent on understanding what race is and why it is related to health status. We need to identify the components of race that are related to health and to document their role in producing particular patterns of disease.

The study of racial differences in health has a long, and at times, disturbing history in this country. The concept of race and its associated racist beliefs developed in the context of slavery and imperial colonialism (3). Race functioned not only to classify human variation but to justify the exploitation of groups that had been defined to be inferior. Research on racial variations in health has been dominated by a genetic model that views race as primarily reflecting biological homogeneity and black-white differences in health as largely genetically determined. That model emerged in the late 18th century, long before any precise theory of heredity existed (4). The genetic model of racial differences in health is based on three assumptions that are all of dubious scientific validity. They are that race is a valid biological category, that the genes that determine race are linked to those that determine health, and that the health of a population is largely determined by the biological constitution of the population (5).

Although widely shared in our society, the belief that races are human populations that differ from each other primarily in terms of genetics is without scientific basis (6-9). There is more genetic variation within races than between them, and racial categories do not capture biological distinctiveness. The fact that we know what race we belong to tells us more about our society than about our genetic makeup (5). Racial taxonomies are arbitrary, and race is more of a social category than a biological one (10).

The evolution in the scientific understanding of race is readily evident in physical anthropology textbooks published between 1932 and 1979. A study of those books documents a dramatic shift in

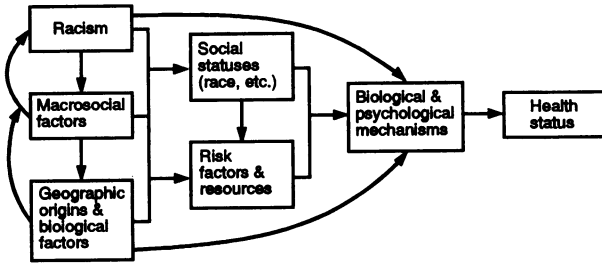
the understanding of race (8). The early texts universally shared the view that race was a valid concept for the description and study of human variation. However, the view that races do not exist became the modal position in physical anthropology texts in later years. In several instances, textbook authors changed their positions between earlier and later editions.

Similarly, recent dictionaries in other social science disciplines reject the biological view of race that they espoused in the 1960s and before (11). For example, the Longman Dictionary of Psychology and Psychiatry (12) describes race as an unscientific term. The Penguin Dictionary of Psychology (13) says of the inherited physical characteristics presumed to define race, "It is nearly impossible to classify or distinguish individuals by such physical characteristics, when no specific set of them truly constitutes criterial features." Similarly, the Collins Dictionary of Sociology (14) says that race is "A scientifically discredited term previously used to describe biologically distinct groups."

It is instructive that despite scientific evidence to the contrary, dictionaries in medicine and epidemiology continue to define race in terms of underlying genetic homogeneity (15). The Dictionary of Epidemiology, for example, defines race as "persons who are relatively homogenous with respect to biological inheritance" (16). Whether intended by individual researchers or not, an emphasis on biological sources for racial variations in health can serve important ideological functions within the larger society. Conceptions of race that emphasize biology are least threatening to the status quo (17). If racial or ethnic differences in health result from innate biological differences, then societal structures and policies that may be involved in the production of disease are absolved from responsibility and can remain intact. Throughout the 19th century, research that viewed racial differences in health as primarily biological in origin diverted attention from the social origins of disease, reinforced societal norms of racial inferiority, and provided a so-called scientific rationale for the exploitation of blacks (4).

Science is not value free, and one way in which preconceived opinions, cultural norms, and political agendas shape scientific research is by determining which research questions get asked and what projects get funded (17). The Tuskegee Syphilis Study illustrates how the uncritical acceptance of normative beliefs about race can lead to the development of research hypotheses, and the initiation of research projects, that the researchers themselves

A framework for understanding the relationship between race and health



NOTE: Racism = racial ideology (categorization or ranking), prejudice, or discrimination (individual or institutional).
 Macrosocial factors = historical conditions, economic structures, political order, legal codes, and social cultural institutions.
 Biological factors = morphological, physiological, biochemical, or genetic factors.
 Social status = race or ethnicity, socio-economic status, sex, social roles, geographic location, or age.
 Risk factors and resources = health behaviors, stress, medical care, social ties, or psychological, cultural, or religious factors.

would rule out under normal circumstances (18). Unless researchers are clear with regard to their conceptualization of race or ethnicity, research questions asked and interpretations provided for findings can obscure the determinants of observed variations in disease and may even have harmful social consequences (19, 20).

The figure is a model of the complex relationships between race and health, providing a model for understanding and studying the role of race in health. The figure indicates that race is a societally constructed taxonomy that reflects the intersection of particular historical conditions with economic, political, legal, social, and cultural factors, as well as racism (21). The components of race are interrelated and can combine to affect each other and other societal outcomes in additive and interactive ways.

Historically, macrosocial factors created racism, giving special salience to selected physical characteristics or the geographic origin of particular groups. The development of racism was progressive and symbiotic with the other macrosocial factors in the model, with racism being shaped by and reshaping societal institutions and structures (22). The model indicates that large societal factors create such social statuses as race or ethnicity, socioeconomic status (SES), sex, roles, geographic location, and age. Occupying any of these statuses has health consequences. However, macrosocial factors and location in social statuses most often affect health through intermediary mechanisms and processes. Those proximal risk factors and resources include health behavior, stress, medical care, and a broad range of social, psychological, cultural, and religious resources. Those intermedi-

ate factors also relate to each other in additive and interactive ways and ultimately impact health status through psychological and biological mechanisms and processes. The following is a consideration of some of the implications of the model.

Limits of Biological Explanations

The figure shows that biological variables, including morphological, physiological, and biochemical characteristics, as well as genetic factors, determine health status. The figure also shows that biological differences between racial groups, at best, have only limited explanatory power in accounting for group differences in disease. Obviously there is a biological aspect to race. Genetics determines not only skin color, but the color of eyes and hair. We focus on differences in skin color, not because the genes linked to skin color have been shown to be critical determinants of disease patterns, but because in our society skin color (race), is a centrally determining characteristic of social identity and obligations, as well as a key determinant of access to desirable resources.

Given that racial groups are more alike than different in terms of biological characteristics and genetics, and that the available evidence indicates that the major determinants of health in general (23), and the excess levels of ill-health among minority populations in particular (2), are social and behavioral, viewing racial differences in health as primarily biological in origin is a hypothesis of dubious scientific value. Some researchers point to sickle cell anemia in African Americans (the terms African American and black are used interchangeably in this paper), or Tay Sachs disease in Ashkenazi Jews, as examples of single-gene disorders that argue for a larger role for genetic factors.

Consider sickle cell disease and its resultant abnormal hemoglobins among blacks. First, the sickle cell trait, although more common in blacks, appears not to result from race but from geographic origin. Sickle cell disease occurs in white populations both within (24) and outside the United States (25). The disease is most prevalent in the regions of the world where malaria was common (equatorial Africa, the Mediterranean, and parts of Asia) and appears to be a protective adaptation to malaria (26). Second, the abnormal hemoglobins caused by sickle cell account for 0.3 percent of the total number of excess deaths among African Americans (27).

Although the genetic contribution to racial variations in health status is likely to be small, genetics

and biological factors should not be completely ruled out. The genetics of a given population is not fixed, but evolves as a result of environmental conditions, natural selection, and gene flow between populations. Biological evolution influences and is influenced by the habitual behaviors of a social group in response to the constraints of its environment (28). Thus, biological differences reflect, in part, the adaptation of human groups to environmental conditions. This adaptation implies that any observed biological differences may result from innate biological factors or acquired ones (26). For example, the hemodynamic profile of hypertension in blacks differs from that in whites. Given that blacks consume substantially less potassium than whites, those differences could result from socioeconomically determined dietary differences between the two racial groups (29).

Similarly, racial differences in exposure to toxins and carcinogens in occupational and residential contexts could lead to systematic differences in biological profiles. Thus, observed differences between two racial groups in at least some biological variables can reflect the consequences of different living conditions. More generally, researchers should be attentive to interactions between biological variables and environmental ones and should allocate to biological hypotheses the research time and dollars that are consistent with their likely contribution to illuminating racial differences in health.

Centrality of Racism

An important contribution of the model is the explicit incorporation of the role of racism as a central determinant of health status. Central to racism is an ideology that categorizes and ranks human groups, with some being inferior to others. Racism encompasses prejudice, negative attitudes and beliefs about other groups, and discrimination, which is the differential treatment of people based on their race or ethnicity. Discrimination is viewed as occurring at both the level of the individual and the level of institutions within society.

Historically, racist ideologies have provided the rationale for the treatment of human populations regarded as inferior. We view those ideologies as products of society. Beliefs in the inherent inferiority of some racial groups is as American as apple pie. The leading scientists of the 18th and 19th centuries and most of our cultural and political heroes (including Thomas Jefferson and Abraham Lincoln) subscribed to a racial hierarchy, with

Indians below whites and blacks below everyone else (30). Even many who opposed slavery and the slave trade believed that blacks were inferior to whites (30). Racial ideology was initially enshrined in the Constitution of the United States, with paragraph 3, section 2, article 1 indicating that for purposes of taxation and political representation, black slaves would be counted as three-fifths of a person, and Indians would not be counted at all (31). The experience of racial discrimination is commonplace in a broad range of settings in contemporary American society (32, 33). Racism has survived and thrived because it is undergirded by deeply entrenched cultural attitudes and beliefs, norms, and roles, as well as practices and institutions (34). Racism is subtle and pervasive, frequently unrecognized and unchallenged because it appears routine, reasonable, and consistent with prevailing social conceptions (35).

Racial discrimination has been suggested frequently as an important factor affecting the health of members of minority groups, little attention has been given to the conceptualization and measurement of this construct. One of the most important issues for enhancing our understanding of racial differences in health is the conceptual development of measures of racism or racial discrimination and the empirical assessment of their consequences for health.

The model suggests that racism can affect health status in a number of ways. It can transform social statuses, determine the degree of exposure to risk factors and resources, and directly affect health through its effects on psychological and physiological functioning. Three examples are

- SES is transformed by racism. The currently used indicators of SES are not equivalent across race. On average, there are racial differences in the quality of education, and whites receive higher income returns on education than blacks and Hispanics (32). The purchasing power of a given level of income varies by race. Blacks have higher costs than whites for a range of goods and services in our society, including food, housing, and auto insurance (10, 36). African Americans have higher rates of unemployment and underemployment than whites. Employed blacks are more likely than their white peers to be exposed to occupational hazards and carcinogens, even after controlling for job experience and education (37).

- At the institutional level, racism can determine the quantity and quality of medical care. The

former Secretary of Health and Human Services, Louis Sullivan, recently indicated that “there is clear, demonstrable, undeniable evidence of discrimination and racism in our health care system” (38). National data show that blacks and Hispanics are disadvantaged compared with whites on indicators of both access to medical care and the quality of care received (39, 40). For example, Hispanics and African Americans are less likely than whites to have health insurance or to name a particular physician as their regular source of care, but they are more likely to wait more than 30 minutes to see a doctor, and to be dissatisfied with the medical care received.

There may be good reasons for the high levels of dissatisfaction. Recent national data show that blacks are almost twice as likely as whites to receive medical care in hospital clinics, emergency rooms, and other organized health care settings, where a person is likely to see a different provider on each visit and thus suffer from a lack of continuity in health care (39). The most telling evidence of racial discrimination comes from studies that have examined black-white differences in access to a broad range of specific medical procedures. Those studies show that even after adjustment for health insurance and clinical status, whites are more likely than blacks to receive coronary angiography, bypass surgery, angioplasty, chemodialysis, intensive care for pneumonia, and kidney transplants (41).

- A handful of studies have related subjective reports of racism or racial discrimination to health status. Two studies of Mexican American women indicate that self-reported racial discrimination is adversely related to mental health. In a study of 140 immigrant Mexican women in southern California, Salgado de Snyder (42) found that being discriminated against was the strongest of 12 measures of stress used in predicting high scores on a scale of depressive symptoms. Similarly, a study of 303 female Hispanic professionals found that reports of employment discrimination were associated with lower levels of life satisfaction and higher levels of psychological distress (43).

Krieger (44) examined the association between racial and sex discrimination and hypertension in a sample of black and white women. Black women who responded passively to the experience of racial discrimination were four times as likely to have high blood pressure as those who talked to others or took other action in response to unfair treat-

ment. Instructively, black women were six times more likely than whites to respond passively to unfair treatment, suggesting that they, probably accurately, perceived themselves as having little control in these encounters. Sex discrimination in that study was unrelated to hypertension for white women. Recent analyses of data from the National Study of Black Americans indicate that the experience of racial discrimination in the previous month, as well as the experience of racial discrimination in employment settings, was adversely related to physical and mental health (45).

We currently do not know the mechanisms and processes by which racial discrimination may affect health. It has been suggested that racial discrimination may diminish self-esteem, generate feelings of loss, and precipitate learned helplessness (46), but those ideas have not been subjected to empirical verification. Racial discrimination may affect health status because the expectation of being discriminated against may be sufficiently aversive that it elicits anticipatory avoidance behavior (35).

The full range of responses to racial discrimination has not been documented. Some limited evidence has suggested that two potential responses, denial or the acceptance of racist ideology, may adversely affect health. Krieger found that black women who reported that they had experienced no incident of racial or sex discrimination were two to three times as likely to have high blood pressure as those who had experienced unfair treatment. One potential explanation of that result is that an internalized denial of racial bias adversely affects health status.

Taylor and Jackson (47) reported that, in a study of black women, internalized racism (beliefs in the innate inferiority of blacks) was related positively to alcohol consumption. Analyses of data from the National Study of Black Americans document that internalized racism (measured as the endorsement of negative stereotypes about blacks) is predictive of lower levels of happiness and life satisfaction and higher levels of chronic health problems and psychological distress (45). Research is needed that would explore the relationship between a broad range of health outcomes and the experience of racial discrimination in employment, housing, and education, and in residential and other public settings.

Race Is More than SES

One of the most firmly established patterns in social epidemiology is the relationship between SES

and health. Persons with high levels of income, education, or occupational status live longer and have lower rates of disease than their counterparts of lower social status. This relationship exists throughout the industrialized world and in developing countries (48). Race is sometimes employed as an indicator of SES. The figure shows race as more than SES. In this country, the differentials in health status associated with race are smaller than those associated with SES, clearly indicating that the health of the population depends more on SES than on race (49). When racial disparities in health status are adjusted for SES, racial differences are substantially reduced and sometimes eliminated (50, 51). Some have called for a decreased emphasis on race with a corresponding increase in attention to SES (52). That would be inappropriate for several reasons.

First, as noted earlier, the widely used SES indicators are not equivalent across races.

Second, although there is a strong relationship between race and SES, they are not equivalent. In 1991, 14.2 percent of all persons fell below the poverty line, with the rates of poverty varying dramatically by race and ethnicity: 11.3 percent of whites were poor, compared with 32.7 percent of blacks and 28.7 percent of Hispanics (1). Thus, although the rate of poverty is three times higher for blacks than for whites, two-thirds of blacks are not poor, and two thirds of all poor Americans are white.

Third, race has an effect on health independent of SES. SES is associated with health status for both blacks and whites, but within categories of SES, blacks frequently have higher rates of morbidity and mortality (53).

Fourth, the most commonly used measures of SES (income, education, and occupational status, or some combination of the three) do not perfectly measure the construct of SES. They capture only a part of the aspects of social stratification that may be predictors of changes in health status. The use of multiple measures of SES and the search for alternative SES measures is an important direction for future work (54). Although income is the most widely used SES measure of available economic resources, it may not be the most appropriate. A measure of total household income is a useful but limited indicator of all the economic resources available to a selected respondent in a given household. This suggests, at a minimum, that researchers would do well to use a per capita income measure.

Racial variations in wealth among blacks and whites are more marked than are those for income.

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There are large racial differences in the inheritance of wealth and intergenerational transfers of wealth, and at every level of income, whites have higher levels of wealth than blacks (55, 56). The systematic exploration of the association of wealth to health status is an important issue for future research. In addition, middle-class blacks are more likely than their white peers to be recently and tenuous in that status (57) and to be involved in the provision of material support to poorer family members. A similar pattern probably exists for members of other minority groups. Thus, the extent to which nonhousehold residents are supported by a given household income should be assessed.

The fact that middle-class blacks are more likely to be their first generation in that status suggests that a disproportionate share of the black middle class experienced poorer living conditions in childhood. SES is not stable or constant during the life course, and a measure of current SES does not capture lifetime exposure to deprived living conditions. A growing body of evidence, mainly from European studies, suggests that people may carry lifelong vulnerabilities because of socioeconomic conditions experienced in childhood (48). Thus, in addition to measuring current SES, more serious efforts need to be made to measure childhood living conditions.

Importance of Multiple Vulnerability

The figure indicates that race is only one of several social status categories that can determine one's health. Groups occupying multiple social categories may have especially poor health status, such as poor black women, since the effects of occupying multiple statuses may lead to cumulative vulnerability that is additive or even multiplicative. Marital, family, and employment roles can be important in determining exposure to risk factors and resources. Marital roles include marital status and history, and family roles include parental roles, as well as household composition. Employment roles include full- or part-time employment, unem-

ployment, underemployment, retirement, and homemaking.

Marital and family roles may be important determinants of health. Hahn (58) found that married women have more economic resources than single women and that this higher level of economic assets plays a major role in the superior health experience of the married. Similarly, another recent study documented that parents' working conditions (specifically occupational complexity) affected their parenting styles at home, which was directly related to the behavior problems and mental health adjustment of their children (59).

A prospective study of more than 2,000 adult members of a health maintenance organization indicates the importance of the spouse, parent, and worker role on morbidity and mortality (60). In this study, employed women had lower mortality rates than women who were not employed. Similarly, parenthood and marriage were related to better health outcomes among employed, but not among nonemployed women. Marriage was associated with better health benefits for women when the marriage included high levels of companionship or equality. In addition, the health advantage of employed women, compared with the nonemployed, resulted from social support received at work.

In a thorough review of the literature, Olson and Stewart (61) have shown that a broad range of measures of family structure and family functioning are related to a variety of indicators of physical and mental health ranging from mortality, diabetes, and cardiovascular disease to depression and schizophrenia. These family variables predict compliance with medical care, help-seeking behavior, making changes in health risk behaviors, and adaptation to stress.

Researchers should keep in mind that family structure and process variables are shaped by the larger social environment. A review of evidence of the structural determinants of social relationships, for example, indicates that levels of informal social integration (contact with friends and relatives) and the quality of emotional support between spouses are related to SES (62). Similarly, unemployment, declines in income, and high job turnover are associated with increased rates of marital dissolution; the number of female-headed households declines when male earnings rise and rises when male unemployment increases (63). Research indicates that structural features of work environments affect levels of communication among coworkers and that unemployment is associated with declines

in levels of social interaction with coworkers, as well as with friends, relatives, and community organizations (48).

Researchers need to give more attention to the role of geographic location as a determinant of risk factors and resources that affect health status. The location of a population could affect its exposures to risks in the physical environment, as well as its exposure to resources to improve health status. For example, a recent study (64) found that Mexican Americans were less likely than other Hispanics, whites, or blacks to have been to a dentist. Poor Puerto Ricans were more likely to visit a dentist than poor Mexican Americans. It is likely that the concentration of Mexican Americans in southwestern States, where coverage of human services programs is not particularly generous, affects access of that population to medical services in general, and to publicly funded dental care in particular. Residence in urban versus rural areas and in central city versus suburban locations may affect exposure to risk factors and resources as well.

The model indicates that age and sex are other social statuses that may affect the impact of race on health status. It is important to distinguish innate biological concomitants of aging and sex from the societally conditioned statuses linked to age and sex. For example, Geronimus (65) has proposed a "weathering hypothesis" to account for some patterns of higher morbidity among blacks. In a hostile environment, age captures exposure to environmental assaults and deficits, such that increasing age, even in young adults, is associated with worsening health status.

Significance of Cultural Variation

The previous discussion of racism suggests that broad cultural forces are key determinants of the attitudes and behavior of persons in the mainstream. Given the various geographic origins of racial groups and their exposure to distinct historical and contemporary experiences, the model suggests considerable cultural heterogeneity between and within racial groups. Distinctive cultures evolve as social groups adapt to their environment. Culture is not static, but is created as social groups respond to, as well as, construct and change their historical and contemporary experiences. Many researchers neglect culture, and others view it as autonomous individual characteristics, unrelated to living and working conditions and independent of the broader political and social order. The social

and economic structures under which groups live can shape values and behaviors in ways that have health consequences.

Another problem with the study of culture is the inattention to the theoretical identification and empirical verification of the specific aspects of culture that may affect attitudes and behavior that are consequential for health (20). Such research does not enhance our knowledge of the association between culture and health, and it is imperative that researchers devote more attention to the direct assessment of the specific cultural beliefs and behaviors that are presumed to affect health status.

Cultural variations, combined with variations in SES, suggest that there will be considerable heterogeneity in the distribution of disease and risk factors for disease in racial or ethnic minority populations. The increasingly available racial or ethnic-specific health data clearly documents that fact. For example, there is considerable variation between and within racial groups in the level of access to prenatal care. The percentages of women receiving prenatal care during the first trimester of pregnancy in 1990 were white, 79.2 percent; black, 60.6 percent; American Indian or Alaskan Native, 57.9 percent; Asian or Pacific Islander, 75.1 percent; Chinese, 81.3 percent; Japanese, 87.0 percent; Filipino, 77.1 percent; other Asian or Pacific Islander, 71.4 percent; Hispanic origin, 60.2 percent; Mexican American, 57.8 percent; Puerto Rican, 63.5 percent; Cuban, 84.8 percent; Central and South American, 61.5 percent; and other and unknown Hispanic, 66.4 percent (1).

Failure to attend to the variations in health indicators within a racial category can prevent the identification of health needs for some specific groups. For example, Suh and coworkers illustrated this problem for the Asian American population in California (66). The 1992 Kindergarten Retrospective Survey revealed that, while 55.6 percent of Asian children had been adequately immunized (compared to 44.2 percent of blacks, 58 percent of whites, and 36.9 percent of Hispanics), only 21.6 percent of Southeast Asians had been immunized.

Similarly, dramatic ethnic-specific mortality variation existed for the API population. For example, although low rates of death because of homicide and legal intervention in California are seen among 15–24-year-old Chinese (6 per 100,000 population) and Japanese Americans (13 per 100,000), high rates found among Samoans (54 per 100,000) and other Pacific Islanders (73 per 100,000), are more similar to African Americans (86 per 100,000) than to the overall API population (17 per 100,000).

Similar variations are evident among Native Americans. Tribal-specific data for the State of New Mexico show large intertribal differences on such health indicators as prenatal care, low birth weight, births to teenage mothers, births to single mothers, infant mortality, premature mortality, and causes of death (67). For example, the 1990–91 percentage of low birth weight infants for the Native American population in New Mexico was 6.2. However, specific tribal rates ranged from a high of 10.4 (Mescalero Apache) to a low of 1.8 percent (Santa Clara Pueblo). Variations in health and demographic characteristics for the major Hispanic groups are well documented.

Although those are important commonalities in the African American experience, there is considerable heterogeneity within the black population. Green (68) has identified nine distinct “cultural-ecological areas” for the black population that vary in history, economics, and social and environmental factors. The nine cultural-ecological areas are Tidewater-Piedmont (eastern Maryland, Virginia, and North Carolina); coastal southeast (South Carolina and Eastern Georgia); black belt (central and western Georgia, Alabama, Mississippi, parts of Tennessee, Kentucky, Arkansas, Missouri, Louisiana, and Texas); French tradition (Louisiana, eastern coastal Texas, and southwestern Mississippi), areas of Indian influence (Oklahoma and parts of Arkansas and Kansas); southwestern areas (west Texas, New Mexico, Arizona, and California); old eastern colonial areas (New Jersey, Pennsylvania, New York, Massachusetts); midwestern and far western areas (Illinois west to Washington); and post-1920 metropolitan north and west ghetto areas (major inner cities, such as New York, Detroit, Chicago, and San Francisco). Health researchers have not explored the usefulness of this typology for predicting variations in African American health, but it appears to be a promising direction for future research.

Considerable ethnic variation exists within the African American population. The black population includes immigrants from the Caribbean area and the African mainland. Almost half a million persons in the 1990 census indicated that they were of sub-Saharan African ancestry. The black population from the Caribbean basin countries is diverse and includes Spanish-speaking persons from Cuba, the Dominican Republic, and Panama; French-speaking persons from Haiti and other French-speaking Caribbean areas; Dutch-speaking persons from the Netherlands Antilles; and English-speaking persons from the former British colonies.

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According to the 1990 census, almost 1 million Americans indicated that they were of English-speaking West Indian ancestry, with an additional 300,000 indicating they were of Haitian ancestry. However, some research suggests that persons of West Indian or other Caribbean descent are at least 10 percent of the black population in the United States (69).

Although these ethnic subpopulations within the African American population are relatively small, given their regional distribution, they constitute a substantial proportion of the black population in some areas. For example, it is estimated that more than half of the English-speaking West Indians in this country live in New York City and neighboring areas. Research conducted in the African American population of the Northeast documents variations in morbidity by ethnicity. One study found that American-born and Haitian women had higher rates of cervical cancer than English-speaking Caribbean immigrants, but both immigrant groups had lower rates of breast cancer than their American-born black counterparts (70).

Assessment of Risk Factors and Resources

Macrosocial factors, racism, and social status ultimately affect health through intermediary risk factors and resources that directly impact on people. Race is widely used in a routine and uncritical manner in the health literature to account for differences in health status and health service utilization between human populations (71, 72). However, failure to identify the specific factors that contribute to group differences can reinforce racial prejudices and perpetuate racist stereotypes, diverting both public opinion and research dollars from the larger social factors that ultimately account for the patterns of disease variation.

Recently, Lillie-Blanton and coworkers documented the utility of this approach by reanalyzing data that showed that blacks and Hispanics were twice as likely as whites to have used crack cocaine (19). Respondents in that national sample were

grouped into neighborhood clusters based on census indicators of social environmental risk factors. They found that once grouped into neighborhood clusters (that is, holding constant similar social environmental conditions) the rates of cocaine use of blacks and Hispanics were not higher than those of whites. Despite the ecological nature of those analyses, they illustrate the importance of the conceptual identification and the empirical verification of the specific variables presumed to account for group differences in disease.

The differential distribution of stress may play an important role in accounting for health status differences between the races. Current measures of stress are biased towards the stressors experienced by the middle class and do not adequately characterize the stressful conditions faced by the poor, including the minority poor (62). There may be qualitative differences across race or ethnicity in the experience of stress. For example, little attention has been given to the health consequences of living in depressed inner-city neighborhoods.

Some recent research suggests that exposure to community violence is adversely linked to health (73). The combination of living in physically dangerous urban areas and the maintenance of constant psychological vigil to deal with the mini-assaults of racial bias may lead some racial or ethnic minorities to live in a state of heightened vigilance that can adversely affect health. Consistent with this view, three studies using ambulatory blood pressure measurement procedures have found that compared with whites, African Americans have higher blood pressure levels during sleep, although mean daytime blood pressure readings did not differ (74-76). That suggests that blacks' perceived need to actively cope with the exigencies of their environment may lead them to unconsciously maintain a higher level of physiological arousal at night.

The extent to which minority populations are disproportionately exposed to environmental toxic exposures has been a neglected issue in studies of racial differences in health status. An analysis of the distribution of hazardous waste sites showed that race was the strongest predictor of the location of hazardous waste facilities, even after adjustment for socioeconomic factors (77). Central city residents are five times more likely to be exposed to air and water pollution than their suburban peers, and predominantly black, poor, rural persons are disproportionately likely to be exposed to toxic materials from nearby industrial plants (78). Lead poisoning is a major health problem for minority

children in inner-city neighborhoods. Linking survey data to data from the Environmental Protection Agency's Toxic Release Inventory may be one useful means of exploring those issues.

Failure to characterize environmental exposures in epidemiologic studies may lead to overestimates of the effects of other measured risk factors (79). Both cigarette smoking and alcohol use have more adverse effects on blacks than whites. It is likely that blacks who smoke are more exposed to toxic working and residential environments than their white peers. Thus the effects of a given health practice may be exacerbated because of its co-occurrence with other risk factors.

Research efforts to characterize fully the risk factors and vulnerabilities of minority racial populations must be balanced by attempts to identify strengths and health enhancing resources within the population. An exclusive focus on social pathology provides a distorted characterization of the struggles and strengths of disadvantaged populations. The figure illustrates the concept that medical care and other social, psychological, cultural, and religious resources may enhance health. However, in focusing on positive resources, we must guard against presenting overly idyllic pictures. For example, some researchers discuss the social networks of blacks and Hispanics as if they were a simple panacea for a broad range of health issues. Instead, although these networks facilitate survival, they likely provide both stress and support (80).

Primacy of Societal Factors

Such a framework emphasizes the primacy of large-scale societal factors as determinants of health status. Those macrosocial factors determine not only the social categories to which people are assigned, but their exposure to risk factors and resources. Much research on health behaviors, for example, views them simply as individual characteristics and ignores the macrosocial structures and processes that are consequential for the initiation and maintenance of health practices (81, 82). For example, the prevalence of alcohol problems is high for Native American, Mexican American, Puerto Rican, and African American males (83-85). Alcohol is a mood altering substance that is frequently used to obtain relief from the adverse living and working conditions induced by large social structures and processes. Feelings of powerlessness and helplessness are predictors of drinking frequency, quantity, and problems (86). Alcohol consumption increases during economic recessions, and there is a

positive association between alcohol consumption and the unemployment rate (87).

There is a strong positive association between the availability of alcohol and alcohol consumption (87). Thus, State licensing boards, which have permitted more retail outlets for the sale of alcohol in poor and minority neighborhoods than in affluent areas (88), contribute to alcohol abuse in those areas. Vulnerable populations, such as blacks and Hispanics, have been specially identified by large scale economic interests, with most billboard advertisements directed to African Americans and Hispanics (89, 90). Alcohol ranks second to cigarettes as the most heavily advertised product on this medium.

Legal codes can shape the lives of populations in ways conducive to health or illness. Historically, laws have provided legal definitions of racial groups, as well as restrictions on the lives of those groups defined as inferior. Jim Crow laws restricted blacks from voting, using public accommodations, and interacting socially with whites; laws in many western States made marriages between Filipinos and whites illegal; other laws have prohibited Japanese from buying land and restricted the admission of Asian Americans to certain colleges; laws in New Mexico refused to uphold the rights of Mexicans whose property had been forcibly taken by whites (91). However, recent civil rights legislation may be viewed as a legal resource to improve the health status of racial and ethnic minority populations.

Little research has been directed to the question of how political power translates into differences in health status. The differential distribution of power in our society results in the unequal distribution of desirable resources and rewards. In an analysis of infant mortality rates in various cities, LaVeist (92) documented an inverse association between black political power and postneonatal mortality rates. He suggested that the political empowerment of blacks may lead to more community-level political participation, increases in black employment, and in the overall quality of life of community residents, which may translate into benefits for health and well-being.

The figure indicates that the processes by which all these factors relate to each other and impact on health status are conditioned by history and must be understood within a historical perspective. For example, blacks have higher rates of alcohol abuse and cigarette smoking than whites. That reflects a dramatic historic shift in the social distribution of these behaviors (82). Prior to 1950, rates of smok-

ing and alcohol abuse were higher among whites than blacks.

The combination of forces that have led to the initiation and maintenance of higher rates of these practices within the black population are not well understood. It appears that the migration of African Americans from the rural South to large urban centers in the North may have played a major role (83). Life in the urban North was characterized by greater availability of alcohol and tobacco, greater need (especially for second generation migrants) to escape feelings of alienation and hopelessness, and probably increased marketing of alcohol and tobacco to these urban dwellers (93).

The migration experience and the timing of migration is an important historical event in the experience of racial or ethnic minority populations. Since the passage of the Relocation Act of 1952, there has been a large movement of American Indians from reservations to large urban centers, with more than half of the Native American population currently residing in cities (91). The implications of that migration for the health of first and second generation American Indian urban residents should receive more research attention.

There is a temptation to focus on identified risk factors as the focal point for intervention efforts. In contrast, we indicate that the macrosocial factors and racism are the basic causes of racial differences in health. The risk factors and resources are the surface causes, the current intervening mechanisms. These may change, but as long as the basic causes remain operative, the modification of surface causes alone will only lead to the emergence of new intervening mechanisms to maintain the same outcome (48). That suggests that equal access to medical care alone, for example, will not eliminate racial differences in health.

Prospects and Ongoing Challenges

We now consider selected opportunities and challenges in applying the proposed model, given the currently available health data both within and without the Federal data collection system. For most of this century, the white-nonwhite contrast was the major basis of racial differentiation in the Federal data collection system. However there has been, since the late 1970s, a growing emphasis on collecting more data on the racial and ethnic minority populations that constitute an increasing proportion of the American population.

The National Health Interview Survey, a continuing nationwide sample survey, is a major pro-

vider of data on morbidity within the American population. Since 1985, the survey has oversampled areas with a large proportion of blacks to increase the sample size and improve the precision of the statistics for that population. Hispanics were oversampled in 1992. Beginning with the 1992 survey, the API racial category was expanded to include nine subgroups and now allows estimates to be made for seven API categories (Chinese, Japanese, Filipino, Korean, Vietnamese, Asian Indian, and combined Hawaiian, Samoan, and Guamanian). The sampling scheme for the survey is being redesigned, based on the 1990 census. The new sampling design, starting in 1995, will provide for continuous oversampling of blacks and Hispanics to provide annual estimates with improved statistical precision for those groups.

The National Health and Nutrition Examination Survey (NHANES) periodically interviews and medically examines a probability sample of the population. NHANES III is being conducted in the period 1988-94. Blacks and Mexican Americans are oversampled in NHANES III. Hispanic HANES, conducted during 1982-84, was similar in content and design to previous NHANES surveys. However, Hispanic HANES employed a probability sample of the Mexican, Cuban, and Puerto Rican origin populations in the continental United States. It has been an important source of data on Hispanics.

A number of major epidemiologic studies are giving increased attention to the inclusion of minority populations. For example, the Strong Heart Study focuses on cardiovascular disease and its risk factors among diabetic and nondiabetic Native Americans (94). The study includes 12 tribes in Arizona, Oklahoma, and North and South Dakota. Similarly, the Atherosclerosis Risk in Communities (ARIC) Study is a multicenter study designed to investigate the etiology of atherosclerosis and its clinical manifestations in samples of 4,000 adults, ages 45-64 years in four communities (95). In one of the communities, Jackson, MS, the study specifically focuses on the African American population.

A growing number of research and intervention projects seek greater input and involvement from the populations studied. Heart, Body, and Soul, for example, is a community-based intervention program that includes a partnership of an academic medical institution and a high-risk urban African American population (96). The program is directed toward decreasing premature morbidity and mortality and enhancing health and functional status. Pastors and volunteers from African American

churches were recruited to play an active role in the program.

The National Institutes of Health now requires all grant applicants to include women and minorities in study samples or provide justification for their exclusion. This rule should yield much additional data on minority health. Despite these positive developments, problems remain with racial or ethnic data.

First, there is a problem of definition. A review of the racial classification schemes used by the Bureau of the Census from the late 19th century to the present shows that no racial classification scheme has been used for more than two censuses (97). Most racial categorizations were used only once. For example, persons of Mexican ancestry were classified as a separate race in 1930, but reclassified as white in 1940. There are ongoing difficulties with the measurement of Hispanic ethnicity (97) and ongoing controversy with regard to the limitations of the term Hispanic (98-100). Increases in interracial marriage and changing perceptions of racial or ethnic identification pose particular problems for our classification systems. A growing number of people prefer to use a multiracial designation to identify themselves, a trend likely to become more common.

A related problem is the extent of racial misclassification based on discrepancies between interviewer observed race and self-identified race, or on variations in classification by different administrative systems (101). The problem exists for all racial or ethnic groups, but it is especially acute for American Indians, Hispanics, and Asian Americans. Misclassification can distort our knowledge of the health status of affected populations. A recent study documented that only 60 percent of cancer patients registered with the Indian Health Service as Native Americans were so identified in a cancer surveillance registry (102). This led to an underestimation of cancer incidence rates for Native Americans.

A second problem with current data on minority racial groups is the small sample sizes available for the API population and Hispanic subgroups in most existing data systems. The lack of adequate data sets frequently produces small sample sizes and unreliable estimates of the distribution of disease and disability and often precludes the ability to examine heterogeneity within a given racial group.

The small sizes and geographic concentration of these populations suggest that geographically focused surveys, as opposed to national ones, are

'Racism encompasses prejudice, negative attitudes and beliefs about other groups, and discrimination, which is the differential treatment of people based on their race or ethnicity.'

needed to obtain data from those groups. At the same time, combining multiple years of data is a useful strategy for obtaining health information for rare populations. A related issue is the availability of only limited data for individual States and smaller geographic areas.

A third concern with available minority health data is the noncoverage of selected racial or ethnic subgroups in population-based epidemiologic surveys. This is true both of small groups that are relatively rare and diffusely distributed in the population, such as some of the Asian American subgroups, as well as the high rates of nonresponse in some groups. African American males have high rates of nonresponse in population-based survey research studies (103). High rates of nonresponse in a particular group may bias estimates of the distribution of disease for that group. Low response rates for racial minorities can be eliminated by a commitment of adequate financial resources and the utilization of appropriate field methods (104).

A related problem is the census undercount of black men. Angry demands for census recounts and complaints about the undercount of the black population date back to the 1870 census and have not diminished (31). Given that census data are routinely used to construct sampling frames for population-based epidemiologic studies, to adjust samples for nonresponse, and calculate denominators for mortality and selected morbidity rates. Failure to adjust for census undercount can distort our knowledge of the distribution of disease in particular subgroups.

Mathematically, any rate that uses an undercounted denominator is increased in exact proportion to the undercount in the denominator. Thus, morbidity and mortality rates that use census data as denominators are overestimated by the same percentage as the undercount of the population in the denominator (105). The technical appendix of the mortality statistics for 1988 reveals that for all 5-year age groups of African American men 35-54 years of age, the estimated net census undercount is

16-19 percent (106). Because estimates of undercount are available only at the national level, there may be considerable variation by geographic area. Although the National Center for Health Statistics concedes that rates adjusted for undercount may be more accurate, it does not adjust rates. This means that all of the official mortality rates for middle-aged black men (that use census data as denominators), are at least 16 percent too high. Since estimates of net census undercount are estimates derived from a particular set of assumptions, they are subject to error, but they are probably more accurate than unadjusted data. For the determination of policy we must use the best available data.

The existence and quality of racial or ethnic identifiers on administrative data sets are also issues of concern. Current billing data do not have race or ethnicity. One reason for this omission was to avoid the perception of discrimination. Thirty-four States maintain hospital discharge data bases. Those data bases are a rich source of information on diagnoses and procedures received, discharge status, complications, charges, age, and similar characteristics. Eleven of the 34 discharge data bases do not provide information on race or ethnicity, and the available data on the others is not uniformly comprehensive. The Social Security application file is the source of race or ethnicity for important administrative data sets, but recent changes in the application process have resulted in the loss of racial information for a substantial proportion of new applicants. For more than 90 percent of infants born in this country, the information for the issuance of a Social Security number (SSN) is collected in the hospital, as part of the birth registration process. The States pass that information on to the Social Security Administration and a SSN is issued for the child. This new process is probably more efficient and inexpensive than the traditional application process and increases the likelihood that the nation's children will have SSNs to meet new reporting requirements of the Internal Revenue Service, which currently requires the reporting of the SSN for any person 1 year or older who is claimed as a dependent.

States collect racial or ethnic identification, but under most State laws it is confidential information, for valid historical reasons. Racial or ethnic information still is collected during the application process for a SSN, for persons who apply at a Social Security Administration office. However even in this context, the provision of this information is clearly stated as voluntary.

Some of the issues regarding racial and ethnic

data on administrative data sets may be resolved within the legal arena. In January 1993, a lawsuit was filed against the Secretary of Health and Human Services and the Department of Health and Human Services alleging that they were in violation of Title VI of the Civil Rights Act because racial and ethnic data were not available on Medicaid and Medicare data sets. The suit alleged that failure to provide racial and ethnic identifiers precluded the possibility of monitoring compliance with civil rights statutes.

Identifying the full range of racial or ethnic heterogeneity in all of our health-related data systems is necessary and important. It will facilitate the identification of the social distribution of disease and the appropriate targeting of health-related interventions. However, it is only a first step. Racial or ethnic identifiers *per se* do not reveal the specific variables responsible for population variations in disease, disability and death.

As noted, the presentation of racial or ethnic variables in health can perpetuate racial or ethnic prejudices. Whenever possible, additional data that captures the specific factors that contribute to group differences in disease must be collected. Data surveillance systems and administrative data bases are limited in terms of the collection of additional data, but at least one indicator of SES should be included. (Years of formal education is probably the most practical and convenient indicator.) Given those limitations, the collection of health data in epidemiologic surveys will remain an important and invaluable source of information on the role of race or ethnicity in health.

Conclusion

The central point of this paper is that the time has come for more deliberate, purposeful, and thoughtful explication of race and ethnicity. We must be more actively involved in efforts to assess directly the health-related aspects of belonging to a racial or ethnic minority group and their associated social categories. We need more data and better data. More important, however, is our need for a courageous group of persons who are willing to exercise leadership and to chart a new agenda for research on racial or ethnic variations in health status.

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