

Conceptual and Methodological Issues in the Use of Race as a Variable: Policy Implications

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THE CLASSIFICATION OF POPULATIONS INTO DISCRETE categories based on phenotypic or genotypic criteria is an accepted practice in the physical and social sciences. In attempting to explain diverse physical characteristics and sociogeographical experiences among populations, the term "race" has been employed for taxonomic purposes. In most scientific research, however, controversy and confusion have surrounded its use (Fortney 1977). For many scientists such as biologists, geneticists, and physical anthropologists, definitions have consisted primarily of biological subject matter (e.g., gene pools, blood type, skin color). Social scientists, in contrast, have used the term to refer to behavioral practices (e.g., cultural patterns, language), social factors (e.g., stratification, income status, discrimination) as well as phenotypic characteristics (e.g. hair texture, skin color, facial features). Yet, neither the biological nor sociological approach to racial classification is devoid of serious theoretical and methodological shortcomings.

Depending on the contextual application, the classification, definition, and recording of data by race have important implications for health research and health policy. The social science translation has involved considerable complexity and varied theoretical and empirical emphases. Although the concept permeates social and behavioral science as well as epidemiologic research, its meaning is rarely specific or precise with respect to its components and the possible consequences of defining it in a particular way.

Moreover, in examining human genetics and the racial proclivity for certain diseases, it is recognized that races are highly heterogeneous categories (McKusick 1969). They possess varying frequencies of the same genes, clusters of different genes, or some combination of these. Classification is thus not a simple procedure since there are many genetic similarities between the various races. Divisions may be based on blood group frequencies, prominent physical traits, geographical location, and/or admixture resulting from interracial mating. Notwithstanding, humans constitute "one species with no chromosomal differences between the various races and with free interbreeding possible" (McKusick 1969, 178-79).

Objectives

A number of prominent controversies encompassing the postulation of race as an independent or explanatory variable will be examined. Of particular interest are the diverse ways in which it is conceptualized and measured in research emphasizing health differentials and risk factors. The general objective will be to indicate some possible ramifications of particular uses for studies of disparities in health status and for policy formulation. A primary aim is to scrutinize the use of the race concept by health professionals, epidemiologists, and social and behavioral scientists who study disease prevalence and incidence, mortality, and medical care utilization among black Americans.

There are numerous methodological issues which emanate from the dependence on race as a predictive research variable. Specifically, the focus is on several of the conventional empirical and conceptual applications. These include positing race as a: (1) biological and genetic category; (2) social construct; (3) term converging with ethnic stock and ethnicity with respect to behavior, cultural beliefs and values; and (4) sociodemographic variable characterized by economic variation within race (Wilkinson 1984; Wilson 1978). Such uses have had a long history and thus are deeply embedded in the paradigms and premises of the scientific literature (Mausner and Bahn 1974, 49-50).

Various crucial dilemmas confront health researchers who study black Americans. This discussion is intended to raise questions and

generate ideas rather than resolve the controversies. In addition, some comments will be made about analyses of health knowledge and awareness of symptoms; help seeking behaviors, particularly delays in seeking care; and lifestyles wherein race is postulated as an independent variable. From a public policy, theoretical, and methodological perspective, it is important to consider the basic assumptions, definitions, context, and significance of incorporating race as an explanatory factor in health research. This is especially relevant to comparative studies where the reliance on race as an analytic tool often leads to simplistic, misleading, or inappropriate conclusions. Many researchers have failed to grasp its key dimensions and broader social and political implications with respect to intergroup relations, epidemiologic studies (Cooper 1985), health services research, and clinical work (Wilkinson 1980).

Race and the Social Context: Issues for Consideration

Several interrelated questions are pertinent to this examination of the divergent meanings and interpretations of race. Among these are the following:

1. As a social concept, race cannot be interpreted apart from its environmental context. When does it refer exclusively to cultural patterns? When is it an indicator of or a covariant with socioeconomic status (see Wilkinson 1984; Wilson 1978)?
2. Is the epidemiologic use of the term consistent with the sociological model of majority-minority group status?
3. What are the socially relevant differences between race and ethnicity?
4. What are the practical implications of the misconception or misuse of the term race by epidemiologists and health researchers?
5. Given the variation in definitions, on what bases should health promotion and prevention campaigns be designed for black and other racial and ethnic populations?

The latter two questions reflect empirical and policy issues relevant to the definition of race as either a social or cultural variable.

Theoretical models and scientific inquiry that incorporate race generate debate regarding what kind of analytic tool the concept represents. Is it akin to *sex* which is a biogenetic term? Or is it more closely associated with *gender* which is a psychobehavioral and role orientation construct? Does race converge with *ethnicity* (Taylor 1978) or with *ethnic stock*? If its meaning is either *biological* or *cultural*, do the conceptual and measurement components make a difference in studies of health behaviors and in the interpretation of results? What are the probable consequences of disparate translations of race for health policy? These are among the questions that will be addressed in this discussion. The underlying assumption is that scientific axioms, federal and state policies, and the distribution of health services are contingent on the empirical explication of race. If health policies are based on one meaning over another, the outcomes could be critical.

Morbidity and Mortality Differentials

Over the past two decades there has been an increasing volume of research in areas such as chronic disease prevention and control (e.g., cancer, hypertension), the availability and utilization of health services, sociodemographic characteristics and health behaviors, and genetics. Emphases have been directed primarily toward explaining the differences in morbidity, mortality, and medical care use between blacks and whites. Many areas, such as delay in seeking treatment and differential survival, represent serious ones that require rational assessment based on sound empirical studies as well as intervention. The scientific and practical contingencies associated with the term race, however, call into question the validity and reliability of social science and health research in which its meaning is ambiguous and elusive. Much of what is written about the incidence and prevalence of disease, life expectancy, and mortality (e.g., infant, maternal), in which race is posited as an antecedent or determinant, leaves the processes of interpretation and inference to the reader.

Differential morbidity and mortality rates in the United States are assumed to be closely correlated with race as well as ethnic heritage. Rates specific for race provide a demographic context within which epidemiologists describe and explain the dynamics of the disease process. Similarly, medical sociologists and behavioral scientists seek inter-

pretations of help-seeking behavior, health services utilization, patient satisfaction with care, and type of care dispensed in terms of the race variable. Yet, in most social science and epidemiologic research, the concepts and interpretations are not evaluated as representing fundamental sources of systematic measurement error. When ascertaining the type, distribution, incidence, or prevalence of disease, there are no concrete indicators specified of the reliability of the race concept nor of its internal and external validity. Thus, it is never precisely clear whether the variations found in health beliefs and behaviors or in disease frequency and in mortality rates are primarily the result of how race is defined or whether the findings indicate a true difference. For example, are the differences in cancer morbidity and mortality, hypertension, and in health services utilization the result of employing race as a biological variate, a component of socioeconomic status, an indicator of culture, or as a factor which interacts with social class? The health policy and planning implications of these conceptual distinctions are highly significant.

Although social scientists lack knowledge of biology and genetics, they consistently interpret correlates with race by relying on biological or genetic explanations either directly or inferentially. Analyses of racial differences in disease prevalence, infant mortality, and in life expectancy are most often based on the premise that the associations can be attributed to race as an hereditary factor. Frequently, such reductionistic assertions rule out important variables like accessibility and availability, family income status, trust in physicians, quality of care, stage in diagnosis, and the organization of and prior experience with the health care delivery system. Even when these constitute the explanations, they are used to highlight racial differentials in a biological sense.

Some Methodological Consequences

The gathering of health statistics in the United States incorporates associating race with differences in disease incidence and prevalence and in mortality. The frequency of occurrence and the severity of disease consistently show variability within as well as between racial categories. This is especially true for blacks and whites, which represent the numerically larger and physically distinct racial populations, although

the dimensions of the differentiation lack clarity. Typically, epidemiologic studies indicate that while blacks have higher rates of hypertensive heart ailments and lung cancer (especially males), whites have higher rates of bladder cancer and arteriosclerotic conditions. Further, some diseases are specifically genetically linked to race or to ethnic stock such as phenylketonuria (PKU) (Centerwall and Neff 1961; Cohen, Bodonyi, and Szeinberg 1961; Saugstad 1975b); muscular dystrophy (Shokeir and Kobrinsky 1976); albinism (Nance, Jackson, and Witkop 1970); Alzheimer's disease (Heston, Lowther, and Leventhal 1966; Wheelan and Race 1959); and Tay-Sachs disease (Kaback, Rimoin, and O'Brien 1977; Yokoyama 1979).

With the aforementioned examples, race is clearly being specified as a genetic construct. This use also permeates social and behavioral science explanations of variability in health status as well as in health beliefs, values, and behaviors—especially medical services utilization. Any such interpretations are confounded by the complex and ambiguous nature of the concept and hence the lack of definitional specificity. Yet, investigators rarely, if ever, clarify what meaning of race is being conveyed, what proportion of the variance in a given dependent variable, such as hypertension or survival rates from heart disease, can be accounted for by race as a biogenetic entity, as a social phenomenon, or what proportion can be explained in terms of the interaction between race and class. The sheer process of attributing a portion of variation in a postulated dependent factor to race involves multiple dimensions. Among the salient methodological questions pertinent to these issues are the following:

1. Is it a valid analytical tool in social and behavioral science research when it is hypothesized as a biological variate or when it is ambiguously defined?
2. How can its genetic or hereditary aspects be extrapolated from the behavioral and cultural interpretations?
3. When posited in survey or health services research as an independent variable, is it possible to separate empirically its genetic or biological meaning from its sociocultural qualities and environmental context?

One basic technique for controlling unanticipated and potentially inexplicable sources of bias in research is matching. This procedure is incorporated in the study designs of cross-sectional and retrospective

surveys and in controlled experiments. The variables on which groups are consistently matched are demographic or constitutional ones: sex, age, and race. An interesting and perplexing issue is whether race is construed as a genetic or biological factor when it is used for matching or when it is allowed to vary or in both instances. The different denotative and connotative meanings within a given study have significant consequences for the validity and reliability of the research results. It is never precisely clear when groups are matched in case-control, longitudinal, or cross-sectional studies whether race is a social factor, an indicator of culture, a biological variate, or a statistical construct. Thus, researchers often make sweeping generalizations about "racial differences" in disease patterns and in mortality rates without ever having offered scientifically pertinent or empirically useful operational indicators. The tacit assumption appears to exist that other researchers and all readers know how race is being used.

More important, the persistent study of biological and cultural differences among racial groups reflects an embedded ideological orientation and thus is not a value-free process nor without political and other ramifications (Deutsch 1969; Taylor 1980). A rarely posed and an unresearched question bearing on this issue was raised over twenty years ago:

Why did the racial features of individuals take on so much importance that a new word was needed in the European language? . . . Whatever the reason for the popularity of the race idea, the fact is that Europeans began to give thought to the subject, and began to classify the peoples of the earth on a racial basis (Berry 1965, 36–37).

Definitions of Race and Their Implications

Much of the ambiguity surrounding the term and the use of racial descriptors relates to the conception of race as either a biological or social category. Although the criteria (i.e., phenotypic, genotypic, and behavioral traits) employed to classify human populations into distinct racial groups are widely recognized, there exists no universal or exact definition of what constitutes a race among either physical

or social scientists. Natural scientists, including physical anthropologists, have tended to rely on genotypic descriptions in dividing people into racial categories. The two criteria most often applied are blood type and the relative frequency of genetic traits (Dobzhansky 1964). The use of genetic variation as a criterion apparently stems from the success of biologists in identifying species of plants and animals. Fortney (1977, 45) explains the fundamental dissimilarities between a biological species and race:

Species have a discernible line of genetic demarcation from one another, whereas races do not. Consequently, races are not clearly defined biological groups. Boundaries between races are more or less blurred by the constant gene flow between human populations.

Genetic mutation, natural selection, drift, and population admixture are four of the processes that make the genetic taxonomy problematic. According to Fortney (1977), however, in the physical sciences, "current theory holds that the most valid criteria for classifying races are data on the frequencies of certain genes within populations" since the outcome differences (e.g., hair texture, eye color) are the most stable and least affected by the environment.

In theory, social scientists view race both as a phenotypic category and as a composite construct reflecting unique and historically specific experiences (e.g., cultural practices, inequality, discrimination) between groups. The significance of phenotypic distinctions is embodied in the premium placed on race as a basis for differentiation and social stratification. Given this, it would appear to have greater relevance as a social descriptor than as a biological one (Van den Berghe 1967), although the two interpretations are closely interconnected in the logic of the social sciences. Further, in the United States, blacks are not considered a minority merely because of their numbers but because they are physically distinct from the majority sector. They are also members of a racially stratified society in which they are defined and responded to as members of the same category. Thus, not only are populations arranged into groupings based on obvious physical traits such as skin color and hair texture but, more significant, behavioral characteristics are assigned to these (e.g., health knowledge and its expression). As a result, persons and populations deviating from the dominant physical norms are perceived and treated categorically. These

perceptions influence the content of social science inquiry and epidemiologic studies of "racial differences" in health status, help-seeking behaviors, health knowledge, life expectancy, disease type and frequency, and mortality. Apparent cultural variations are also often labeled as racial representations and used as criteria for population group comparisons (Burkey 1978). This juxtaposition of race, behavior, and culture further complicates and virtually inhibits objective explanation and precision in measurement. Paradoxically, ignoring the aforementioned fundamentals contradicts the *raison d'être* of science.

A Prevailing Dilemma: Ethnicity versus Race

Further, in the social sciences, race and ethnicity are persistently used interchangeably as though the qualitative distinctions were merely semantic. For many social scientists, race, like sex, denotes physical traits (Berreman 1985, 27). In theory, as previously indicated, it is assumed to encompass much broader phenomena (e.g., discrimination, social stratification, racism, and phenotypic characteristics) than ethnicity which essentially connotes a national identity or a cultural group (Blackwell 1985; Burkey 1978; Singer 1962; Taylor 1978; Wilkinson 1987). The historically based structural position of blacks vis-à-vis whites refers to a hierarchical arrangement in the distribution of societal resources and opportunities such as jobs, education, and health care. Based on these social products of racial differentiation and the cultural aspects of ethnic group membership, there is no inherent association between race and ethnicity.

Of equal importance in understanding the conceptual and practical distinction between race and ethnicity for health policy is a pervasive belief system which, consciously or unconsciously, incorporates the supposition and promotion of racial superiority. This ideologic system is used to justify the structurally "advantaged" position of one group over another (Delany 1970). Thus, in the case of black Americans, it is their structural position and a concomitant shared societal belief that determine and define their health status, use of medical care resources, and differential rates of morbidity and mortality. Given these empirical correlates with racial status and the disproportionate concentration of black Americans in the lower socioeconomic strata, ethnicity and race are further contrasted.

The key question with regard to race-specific health research is: What are the analytic and practical or policy implications of the view of blacks as either a racial or an ethnic group? First, the use of the term race to classify this population sector should not mean that there are no ethnic or cultural differences among them (e.g., West Indians, southern versus northern resident, lifestyle variations). The cultural diversity which does exist among blacks is, for the most part, perceived as less significant or consequential than their common phenotypic traits, shared group history, and a collective belief that gives credence to the assumed linkage between race and behavior.

If race is defined as a cultural measure or indicator of ethnicity, then researchers and policy makers are likely to make fallacious comparisons and draw unwarranted conclusions regarding the capabilities, unique experiences, and behaviors of blacks and whites. The ethnic paradigm of intergroup dynamics assumes that structural impediments and racist beliefs based on phenotypic traits are either no longer relevant or are much less so than cultural characteristics. Adherents of the ethnicity or national-cultural model postulate the notion that the status of blacks can be legitimately compared with that of all other white American ethnic groups (e.g., Jews, Italians, Irish). Yet, this view has been sharply criticized for blurring the deeply entrenched historical, political, and social distinctions between race and ethnic status in America.

In structural terms, Blacks are qualitatively different from White ethnic groups. For White ethnic groups, there is no nationwide ideology that ranks specific groups. In contrast, racism is a pervasive ideology that ranks Blacks as a group below all others because it assumes the inherent genetic inferiority of Blacks. The stress on phenotypic differences (in this case skin color) and its expression in racist ideology determines the character of White-Black interaction in every part of the country. . . . Racism, therefore, is a fundamental factor that makes the Black situation distinctly different from that of all White ethnic groups (Barnett 1976, 13).

In health research, reliance on the ethnicity perspective of intergroup relations may lead to ignoring or placing less emphasis on the effects of social structure and racism. The underlying ideological and value dimensions of seeking and confirming racial variation in morbidity and mortality would also be overlooked. Further, the ethnicity or

cultural hypotheses could result in promoting "boot-strap" theories about the health status and behaviors of all blacks and lead to victim blaming (e.g., "They lack health knowledge," "They seek care later than whites").

Defining Health Problems and Allocating Resources

In conducting race-specific health research, it is important to consider some of the salient contrasts between the biological and social definitions of race and their broader ramifications. First, biological and social explanations represent not only conceptual distinctions but are also relevant to health policy issues. Research directed toward the study of racially based genetic diseases (e.g., sickle cell anemia) may result in fundamentally disparate policy developments and services rather than socially oriented health studies which have as their focus personal responsibility and the role of behavioral intervention.

Moreover, for some diseases such as sickle cell anemia, the amount of concern and resources allocated to address these conditions is not only a product of the ideas and opinions about health and illness but also the collective ideology and structural position of blacks. In addition, those problems that are considered to be genetic in origin may be viewed and treated quite differently from those related to social forces (e.g., environmental pollutants, occupational hazards, accidents). Specifically, in the case of sickle cell anemia, more attention and support may be directed toward this disease since its etiology implies less of an individual responsibility and is unrelated to personal experiences. Therefore, it is only partially amenable to health interventions. On the other hand, such a disease could be used to encourage racial myths by groups who do not suffer from this particular genetic malady.

The issue of hypertension as a genetically based race-specific disease raises a similar set of issues. A great deal of research has shown that high blood pressure is strongly correlated with socioeconomic status, stress, lifestyles, and diet (Langford, Watson, and Douglas 1968; Howard and Holman 1970; Reed 1981; Szklo 1979; U.S. Department of Health and Human Services 1986). Some studies have suggested that hypertension may also be a product of the biological adaptation to a prior African environment and that this genetic heritage may explain the higher racial group differences (Gillum 1979; Singer 1962).

Other researchers who have studied the within-group variations for the disease among black Americans have found that hypertension varies according to skin color. That is, lighter pigmented blacks have a lower prevalence of hypertension than darker skinned ones because the former have a greater genetic admixture with whites (Boyle 1970; Harburg, Gleibermann, and Roeper 1978; Keil 1981). Depending on the interpretation, funds and services could be allocated for either social and behavioral interventions or for genetic programs involving large-scale screening, long-term counseling, and sustained monitoring. In addition, associating diseases with color among blacks might generate or intensify intraracial friction and exacerbate self concepts, especially among children.

Summary

The history, reality, and prolonged effects of racial stratification and its supportive ideology in the United States require systematic study of the impact of racial perceptions in the health sphere and in every facet of American life (Berry 1965; Berreman 1985; Blackwell 1985). In this regard, the use of race as an independent variable in social research is, in principle, similar to the presumed explanatory power of other status characteristics such as class or economic position. Depending on which meaning is intended, the potential policy, health services, and sociopolitical outcomes could be diametrically opposed to one another.

Far from being an esoteric subject among intellectuals, any definition of race has fundamental and practical extensions to cultural and political realities. Essentially, studies and discussions of racial similarities and differences in health matters, whether intended or not, go beyond statistical compilations and correlations and reflect norms, values, the country's common beliefs (Praeger 1982), and the structural positions of majority and minority groups. Presumably, these are among the reasons that racial categories are studied in social science. They are assumed to represent socially relevant and unique histories, experiences, and statuses which differentiate black and white Americans in particular. The risks in epidemiologic and in social science research involve the preoccupation with disparities in the health difficulties among them; the attribution of racial biology and genetic traits to virtually all

health spheres; the assumed preponderance of disabling conditions for blacks; and the unrelenting focus on only two racial populations despite our having a multiethnic society (Wilkinson 1987).

Since health behaviors are directly associated with a group's "way of life," they should be carefully scrutinized within relevant socio-environmental contexts as part of the scientific processes of discovery, explication, and intervention. Researchers must understand and account for the underlying premises, ideological translations, and practical applications of their studies especially with respect to race-specific health research. It is likely that systematic probing beyond demographic or constitutional factors will enable social scientists and health researchers to discover that for certain behaviors (e.g., prevention), individual attributes such as race and sex—and even knowledge, roles, attitudes, and diets—may explain far less than will environmental hazards and basic structural variables such as the organization of the health care delivery system, availability of and access to care, ability to pay, provider patterns, diagnostic processes, institutional operations, and quality of care.

This discussion is not intended to suggest that genetic research should be avoided or that its findings are without merit (Heston and Matri 1977; Saugstad 1975a; Shokeir and Kobrinsky 1976). Rather, it reiterates the fundamental point that scientific research does not take place within a social or political vacuum (Wilkinson 1974). Health researchers who employ race as an empirical variable must understand the environmental context in which this ambiguous and value-laden concept thrives. They have a responsibility to define its meaning and theoretical application with greater precision than has heretofore been the case. As scientists, they also have an obligation to assess objectively and predict the social and economic ramifications of using race in a particular way. In this respect, Tyroler and James (1978, 1172), in examining the contextual nature of research on skin color and hypertension, state:

The danger of perpetuating or encouraging an increase in extant racism in the U.S. is real and immediate in any scientific investigation comparing black and white populations, even when the primary and explicit purpose of the investigation is to reduce the excess burden of morbidity and mortality in black populations. The dangers are particularly acute when a focal area of the investigation involves genetic studies. We regard it as a truism that all health and disease

manifestations in populations (such as high blood pressure and its sequelae) are a result of the interaction of environmental and genetic factors. The mechanisms responsible for the expression of the phenotypic manifestations of health and disease should carry no implication of either superiority or inferiority. The investigation of this subject should be value free. Obviously, this has not always been true.

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