ABSTRACT. Data on research participants and populations frequently include race, ethnicity, and gender as categorical variables, with the assumption that these variables exert their effects through innate or genetically determined biologic mechanisms. There is a growing body of research that suggests, however, that these variables have strong social dimensions that influence health. Socioeconomic status, a complicated construct in its own right, interacts with and confounds analyses of race/ethnicity and gender. The Academy recommends that research studies include race/ethnicity, gender, and socioeconomic status as explanatory variables only when data relevant to the underlying social mechanisms have been collected and included in the analyses.

During recent decades, our understanding of the biological and psychosocial bases of diseases affecting individual children has markedly increased. The capacity to apply newly derived information from molecular and genetic science toward preventive child health care will continue to grow in the coming years. Although biological research is necessary and valid, studies that do not address the importance of social determinants as fundamental causes or contributors to disease and unfulfilled potential limit the scope and impact of research conclusions.

In the United States, data on research participants and populations frequently include race, ethnicity, and gender as categorical variables, with the assumption that these variables exert their effects through innate or genetically determined biologic mechanisms. There is a growing body of research that suggests, however, that these variables have strong—and in many areas predominantly—sociological and psychological dimensions. Because data are collected and research questions are formulated in ways that generally do not include the social as well as biological dimensions of these variables, it is often difficult to disentangle the biological from the social dimensions. The purpose of this subject review is to highlight the interrelationships among factors such as race, ethnicity, and gender, viewed as social constructs, along with socioeconomic status, and to stimulate appropriate definition and analysis of these variables within any study that proposes mechanisms of disease associated with them.

The recommendations in this statement do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

RACE AND ETHNICITY

It is standard practice to describe participants and populations in terms of "race" or "ethnicity." For example, the decennial census has classified respondents according to the 1977 Office of Management and Budget Directive 15, which includes 4 racial categories (American Indian or Alaskan Native, Asian or Pacific Islander, Black, and White) and 2 ethnic categories (Hispanic Origin and not of Hispanic Origin). The recent revision of this Directive has expanded these categories to 5, by separating Asian from Pacific Islander and expanding the latter to "Native Hawaiian or other Pacific Islander," but the existence of this small number of categories limits investigators to use only those categories to frame and analyze questions. The Revised Directive rejected the use of a "multiracial" category, but does recommend that the 2000 Census allow respondents to check more than 1 category.

Although race historically has been viewed as a biological construct, it is now known to be more accurately characterized as a social category that has changed over time and varies across societies and cultures. Racial disparities in health generally do not reflect biologically determined differences in the genome or physiology. Indeed, genetic differences between racial groups are small compared with genetic differences within groups, so racial differences in diseases are, to a significant degree, currently unexplained. It is possible that racial prejudice (both individual and institutional) as a social stress on groups of children and families can influence health behaviors, such as eating habits, activity levels, and substance use and abuse that might place individual children at increased risk for both short-term and long-term health impairment and disease. In addition to effects on behavior, racial prejudice may influence access to and the quality of health services. Similarly, difficulties in definition and measurement, heterogeneities of populations, and ethnocentric interpretations of research data make "ethnicity" an imprecise construct by which to attribute causal relationships. Given that race and ethnicity are similar in their social origins, that is, determined predominantly by the relationships among groups who define themselves or define others, the term race/ethnicity is becoming more widely used.

GENDER

Sex and gender are often used interchangeably, but the former is a biologic characteristic, defined by genetic and anatomic features, whereas the latter is a
Socioeconomic Status

Analysis of the relationship among biological and social variables is complicated, however, by the difficulty in operationalizing socioeconomic status, a complex concept consisting of 2 aspects, both of which may exert influences on health directly or through associated behaviors. One aspect includes resources, such as education, income, and wealth and the other includes status or rank, a function of relative positions in a hierarchy, such as social class. A recent National Institutes of Health conference examined measures of socioeconomic status and proposed ways to incorporate a variety of these measures into health surveillance and research. 

Demonstrated racial/ethnic and gender “effects” may be intricately related to socioeconomic factors, because race/ethnicity interacts with and is confounded by social class or socioeconomic status. For example, environmental pollution may be more intense in impoverished areas and may even be sited in those areas because of discrimination based on race/ethnicity or class. Consequently, it is difficult to disentangle the adverse consequences of that pollution from the effects of discrimination. Although most studies of such confounding and/or interaction have focused on adults, the need for inquiries into such factors affecting child health is equally strong. Little is known about the way that the relationships among these social factors influence the health of children or their effects on the trajectory of the development of adult disease.

Two domains of the relationship between socioeconomic status and health are particularly active areas of research, possibly shedding light on the complexity of the mechanisms whereby this multidimensional variable influences health. The first domain deals with the relationship between the extent of discrepancies in socioeconomic status and health. Numerous studies have documented the relationship between socioeconomic status and health. Despite advances in quality and access to health care services, it is noteworthy that the discrepancy in health status between social classes has persisted over time, even though the specific diseases that produce morbidity and mortality have changed. Furthermore, standard measures of health correlate with the extent of income discrepancy between rich and poor, and the extent of income inequality appears to explain more of the variation in health than is explained by other socioeconomic factors, even the absolute level of income. Across industrialized countries, the greater the discrepancy in income distributions, the worse the health status of the entire population. Data across individual states within the United States demonstrate a similar relationship.

The second domain of the relationship between socioeconomic status and health explores the relationship between childhood socioeconomic conditions and adult health. In Finland, for example, the childhood socioeconomic status of adult men correlated more closely with ischemic heart disease during middle age than did their adult socioeconomic status. Further research is needed to clarify how the socioeconomic status of children affects both their current and future health status.

Conclusion

The American Academy of Pediatrics acknowledges that race/ethnicity, gender, and socioeconomic status can influence child health through social mechanisms. The Academy recommends that child health studies include these critical variables to improve their definitions and enhance our understanding of the effects that relationships (confounding and interactive) among these variables may have on research findings. It is no longer sufficient to use these categories as explanatory. If data relevant to the underlying social mechanisms have not been collected and are otherwise unavailable, researchers should discuss this as a limitation of the possible conclusions of the presented research. The Academy concurs with the conclusions of a recent workshop sponsored by the Centers for Disease Control and Prevention/Agency of Toxic Substances and Disease Registry. Considering the use of race and ethnicity in public health surveillance, the workshop participants concluded that absent careful definitions and analysis, investigators and policymakers may draw erroneous conclusions about race/ethnicity as biologic contributors to illness. Similar errors may result from the failure to consider the social dimensions of gender.
The American Academy of Pediatrics believes that race/ethnicity, gender, and socioeconomic status are likely to emerge as important mediators of childhood health, as well as predictors of adult health status. The Academy recommends that pediatric investigators, in collaboration with social scientists, should develop and apply research methodologies in pediatric research that will result in careful definitions of, analysis of interactions among, and, ultimately, documentation of the effects of these variables on child health. Only then can effective preventive intervention strategies be developed and implemented during childhood to improve the health of our children and the adults into which they will grow.

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