SPECIAL ARTICLE

Four-Year Review of the Use of Race and Ethnicity in Epidemiologic and Public Health Research

R. Dawn Comstock1,2, Edward M. Castillo3, and Suzanne P. Lindsay4

1 Epidemic Intelligence Service, Epidemiology Program Office, Centers for Disease Control and Prevention, Atlanta, GA.
2 Injury Prevention Service, Oklahoma State Department of Health, Oklahoma City, OK.
3 Division of Emergency Medical Services, Health and Human Services Agency, County of San Diego, San Diego, CA.
4 Institute for Public Health, Graduate School of Public Health, San Diego State University, San Diego, CA.

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To determine how current researchers address the use of race and ethnicity as variables in epidemiologic and public health studies, the authors conducted a comprehensive review of 1,198 articles published in the American Journal of Epidemiology and the American Journal of Public Health from 1996 to 1999. Seventy-seven percent (n = 919) of the articles referred to race or ethnicity. The number of variable categories ranged from 0 to 24, with an average of 3.14 per article. An enormous diversity of terms was used to describe the concepts of race and ethnicity as variables as well as to describe the categories used to assess these variables. Researchers frequently failed to differentiate between the concepts of race and ethnicity, to state the context in which these variables were used, to state the study methods used to assess these variables, and to discuss significant study results based on race or ethnicity. Continued professional commitment is needed to ensure the scientific integrity of race and ethnicity as variables. At a minimum, researchers should clearly state the context in which these valuable epidemiologic and public health study variables are being used, describe the method used to assess and categorize these variables, and discuss all significant findings.

epidemiologic methods; ethnic groups; population groups

It is common to compare the prevalence of and risk factors for various diseases and health outcomes between members of different racial and ethnic groups in epidemiologic and public health studies. When these comparisons are made, health disparities between racial and ethnic groups have been well documented. In fact, one of the two primary goals of the US Department of Health and Human Services’ “Healthy People 2010” is to “eliminate health disparities among segments of the population, including differences that occur by gender, race or ethnicity, education or income, disability, geographic location or sexual orientation” (1, p. 11).

Despite such a clearly identified goal, use of the terms race and ethnicity in epidemiologic and public health studies has generated a great deal of careful thought, discussion, and controversy. The challenge facing researchers is how to accurately measure such concepts and how to interpret the results of studies that examine health outcomes using these concepts. Race and ethnicity have no widely accepted standardized definitions, and, despite the fact that several authors have discussed the distinctions between race and ethnicity (2–11), researchers often fail to differentiate between them. Conversely, these terms are commonly used interchangeably or as a single variable labeled “race or ethnicity,” “race and ethnicity,” “race-ethnicity,” or “race/ethnicity” (12).

Two major concerns exist when the results of studies using these variables are interpreted. First is the potential for inaccurate classification or misrepresentation of a person’s race or ethnicity. Many methods adopted to assess race and ethnicity do not use an objective measurable characteristic (12), no good evidence exists that current racial classifications accurately capture biologic or genetic similarities (12), and accurate categorization is difficult even when persons...
self-report their race or ethnicity because a person’s perception of race or ethnicity can change over time (3). The US Office of Management and Budget classifies persons into five racial groups (White, Black or African American, American Indian or Alaskan Native, Asian, and Native Hawaiian or other/Pacific Islander) and one ethnic category (Hispanic/non-Hispanic origin) (13). However, these categories are broad, and the heterogeneity within each category is great. Thus, even though these categories are widely used in health-related research, they may have only limited value in helping us to truly understand health disparities.

The second major concern is the possibility that researchers will erroneously attribute health disparities to racial or ethnic group differences and fail to adequately study and understand the actual underlying causes of the disparities. Factors such as socioeconomic status, social status, educational opportunities, cultural views of disease and health, acculturation, positions of power or powerlessness, inability to appropriately access health care, and racism are most likely the actual driving forces behind these disparities (14). Focusing on race or ethnicity, and failing to adequately recognize and measure underlying factors, limits our ability to truly address these disparities.

Methodological recommendations for using race and ethnicity as research variables presented by previous authors (2, 4–6, 8–10) are fairly consistent. In general, these recommendations have stated that research in which race or ethnicity is used should

1. Differentiate between the concepts of race and ethnicity.
2. Provide justification for the use of race or ethnicity.
3. Describe in detail the method used to assess race or ethnicity.
4. Provide the rationale for the categorization or grouping of race or ethnicity.
5. Attempt to collect information that may be potentially associated with race or ethnicity, such as socioeconomic status or country of origin.
6. Interpret and discuss findings based on race or ethnicity.
7. Be cautious when comparing or generalizing across studies, particularly when potential population differences may be present.

However, we are aware of only three previous studies of researchers’ practices in using race and/or ethnicity as variables in public health research that assessed the use of these variables in journal articles published prior to 1991 to determine whether such methodological recommendations have been accepted (2, 6, 10). Much has been written and recommended since that time, including a Centers for Disease Control and Prevention/Agency for Toxic Substances and Disease Registry Workshop Summary on the “Use of Race and Ethnicity in Public Health Surveillance” (15). The purpose of this study was to update our knowledge of how researchers are currently using the variables race and

![Comparison of the proportion of journal articles that assessed race or ethnicity. Health Services Research data are for midyear of the time periods shown in table 3 of Williams (10), American Journal of Epidemiology data for 1921–1990 are estimated from information in figure 2 of Jones et al. (6), and American Journal of Public Health data for 1980–1989 are estimated from information in figure 1 of Ahdieh and Hahn (2).](image-url)
TABLE 1. Diversity of variable names* used to refer to the concepts of race and ethnicity in articles published in the American Journal of Epidemiology and the American Journal of Public Health, 1996–1999

<table>
<thead>
<tr>
<th>Ancestral group</th>
<th>Ethnicity</th>
<th>Race/ethnicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birthplace/race</td>
<td>Ethnicity/national origin</td>
<td>Race/ethnicity code</td>
</tr>
<tr>
<td>Culture</td>
<td>Ethnicity/race</td>
<td>Race-ethnicity</td>
</tr>
<tr>
<td>Ethnic/ethnicity</td>
<td>Ethnic-specific</td>
<td>Racial groups</td>
</tr>
<tr>
<td>Ethnic background</td>
<td>Heritages</td>
<td>Racial or ethnic group</td>
</tr>
<tr>
<td>Ethnic category</td>
<td>Maternal race</td>
<td>Racial stock</td>
</tr>
<tr>
<td>Ethnic distribution</td>
<td>National origin</td>
<td>Racial/ethnic background</td>
</tr>
<tr>
<td>Ethnic groups</td>
<td>Race</td>
<td>Racial/ethnic group</td>
</tr>
<tr>
<td>Ethnic origin</td>
<td>Race or ethnicity</td>
<td>Racial/ethnic subgroup</td>
</tr>
</tbody>
</table>

* Alphabetical list.

ethnicity by conducting a comprehensive 4-year historical review (1996–1999) of the recent epidemiologic and public health scientific literature.

MATERIALS AND METHODS

The American Journal of Epidemiology and the American Journal of Public Health are well-established, peer-reviewed journals that publish scientific research of public health importance. We reviewed each of the 1,918 articles (1,016 from the American Journal of Epidemiology and 902 from the American Journal of Public Health) published in the 1996, 1997, 1998, and 1999 volumes to determine how researchers publishing in these journals used race and ethnicity as scientific variables. These journals were chosen because of their status as respected representatives of the literature in the fields of epidemiology and public health and because of a precedent for this type of literature review study design in both journals (6, 16–18).

A standardized article assessment form developed by the researchers was used to collect information about the use of race and ethnicity in each article. We reviewed and tested the assessment tool to assure standardization and ease of completion. One researcher reviewed all articles from the American Journal of Epidemiology; another studied all articles from the American Journal of Public Health. Throughout review, researchers were in close contact to resolve problems or answer questions as they arose. The 1,918 articles were initially screened for study eligibility, with inclusion restricted to full or brief papers presenting research involving human subjects from the United States. On the basis of this criterion, 720 articles presenting research of non-US study populations, nonhuman subjects, and methodological issues (those whose main purpose was to present technique) were excluded. The remaining 1,198 articles (570 from the American Journal of Epidemiology and 628 from the American Journal of Public Health) were included in the study.

Questions on the article assessment form addressed

1. Whether the concepts of race or ethnicity were used in the article
2. The stated purpose of including the variables race or ethnicity, and in what context (as a social, cultural, biologic, or strictly demographic variable, etc., or as a marker for acculturation, socioeconomic status, racism, etc.)
3. How these variables were assessed and reported (including the categories of race/ethnicity used and the number of categories reported)
4. How race and ethnicity were specifically referred to in the analysis (as a risk factor, confounder, stratifier, covariate, effect modifier, etc.)
5. The reported results related to race/ethnicity
6. Whether the implications of the race/ethnicity results were addressed in the article (explanatory reasons for the results, suggestions for further research, policy recommendations, etc.).

Both article reviewers (R. C. and E. C) were doctoral-level graduate students in epidemiology. The reviewers did not make any assumptions about the use of race or ethnicity in the articles reviewed. In all cases, the authors’ specific language was recorded. Using practice articles, both reviewers independently pilot tested the article assessment form for interrater reliability prior to beginning the complete review. In addition, the reviewers met weekly to discuss the review process and to address any challenges encountered to ensure that the review procedures and results were consistent throughout the entire period of review. Descriptive analysis of the data was performed by using SPSS software, version 10.0 (SPSS, Inc., Chicago, Illinois).

RESULTS

Of the 1,198 articles included in the study, 919 (76.7 percent) contained references to race or ethnicity; 420 (45.7 percent) were published in the American Journal of Epidemiology and 499 (54.3 percent) in the American Journal of Public Health. There was no apparent trend over time in the proportion of articles assessing race or ethnicity published in either journal (figure 1).

Table 1 shows the diversity of variable names that authors used to describe the concept of race or ethnicity. Twenty-seven different variable names were identified, nine of which (33.3 percent) combined race and ethnicity into one variable (i.e., race/ethnicity, race or ethnicity, racial or ethnic group, etc.). Each variable listed in table 1 also had its associated categories.
### TABLE 2. Examples of terms used to refer to specific categories of race or ethnicity in articles published in the American Journal of Epidemiology and the American Journal of Public Health: 1996–1999.†

<table>
<thead>
<tr>
<th>Category</th>
<th>Asian (n = 37)</th>
<th>Black (n = 16)</th>
<th>Hispanic (n = 46)</th>
<th>White (n = 32)</th>
<th>Other (n = 38)</th>
<th>Unknown or missing (n = 9)</th>
<th>Mixed race or ethnicity (n = 7)</th>
<th>Additional terms (n = 34)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian</td>
<td>African</td>
<td>Caribbean</td>
<td>Anglo American</td>
<td>All others</td>
<td>Missing</td>
<td>Biethnic</td>
<td>American</td>
<td></td>
</tr>
<tr>
<td>Asian/Oriental</td>
<td>African American</td>
<td>Central/South American</td>
<td>British Whites</td>
<td>Missing or other</td>
<td>Not indicated</td>
<td>Biracial</td>
<td>Ashkenazi Jews</td>
<td></td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>Black Americans</td>
<td>Cuban</td>
<td>Caucasian</td>
<td>Multiple/other/unknown</td>
<td>Not ascertained</td>
<td>Black/White</td>
<td>Canadian</td>
<td></td>
</tr>
<tr>
<td>Asian American</td>
<td>Black and other</td>
<td>Cuban American</td>
<td>Caucasian/other</td>
<td>Neither Black nor White</td>
<td>Not classified</td>
<td>Mixed ethnicity</td>
<td>East Indian</td>
<td></td>
</tr>
<tr>
<td>Asian or Filipino</td>
<td>Black Hispanic</td>
<td>Dominican</td>
<td>European</td>
<td>Non Black (all others)</td>
<td>Unknown/refused</td>
<td>Multiethnic</td>
<td>Egyptian</td>
<td></td>
</tr>
<tr>
<td>Asian or other races</td>
<td>Black, non-Hispanic</td>
<td>Foreign born Latina/Latino</td>
<td>Non-Hispanic White</td>
<td>Non-American Indian</td>
<td>Multiracial</td>
<td>Eskimo/Aleut/Alaskan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian or Pacific Islander</td>
<td>Black, other</td>
<td>Hispanic</td>
<td>Scandinavian</td>
<td>Non-Anglo cultural groups</td>
<td>Partly Native American</td>
<td>Foreign born</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian other</td>
<td>Black/other races</td>
<td>Hispanic/Puerto Rican</td>
<td>Southern European</td>
<td>Non-Latino</td>
<td>Hawaiian</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian-Indians</td>
<td>Blacks and other minorities</td>
<td>Hispanic = White, Spanish surnamed</td>
<td>White/Anglo</td>
<td>Nonminority (other)</td>
<td>Jewish</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cambodian</td>
<td>United States/Blacks</td>
<td>Hispanic all races</td>
<td>White/other</td>
<td>Non US born</td>
<td>Middle Easterners</td>
<td>Native American</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chinese</td>
<td>Hispanic American</td>
<td>White American</td>
<td>Non-White/Hispanics</td>
<td>White Hispanic</td>
<td>Other minorities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chinese (Americans)</td>
<td>Hispanic Black</td>
<td>White and Asian</td>
<td>Non-White ethnic minority</td>
<td>Other/other Hispanic</td>
<td>United States born</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Filipino</td>
<td>Hispanic ethnicity</td>
<td>White and other</td>
<td>Non-White or Hispanic</td>
<td>Hispanic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japanese</td>
<td>Hispanic origin</td>
<td>White ethnicity</td>
<td>Other/mixed</td>
<td>White Hispanic</td>
<td>Other minorities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japanese American</td>
<td>Hispanic surname</td>
<td>White Hispanic</td>
<td>Other minorities</td>
<td>Hispanic</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Korean</td>
<td>Hispanic White</td>
<td>White non-Hispanic</td>
<td>Other races/ethnicities</td>
<td>Hispanic</td>
<td>Other non-Hispanic</td>
<td>Other non-White</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Korean (Americans)</td>
<td>Latin American</td>
<td>White Spanish surnamed</td>
<td>Other non-Hispanic</td>
<td>Hispanic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laotian</td>
<td>Latino/Hispanic</td>
<td>Latino not Black</td>
<td>Other non-White</td>
<td>Hispanic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic Asian</td>
<td>Oriental</td>
<td>Mexican</td>
<td>White Hispanic</td>
<td>Other minorities</td>
<td>Hispanic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oriental</td>
<td>Mexican</td>
<td>Mexican American</td>
<td>White Hispanic</td>
<td>Other minorities</td>
<td>Hispanic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>Southeast Asian</td>
<td>Mexican immigrants</td>
<td>White Hispanic</td>
<td>Other minorities</td>
<td>Hispanic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thai</td>
<td>Non-White Hispanic</td>
<td>White Hispanic</td>
<td>Other minorities</td>
<td>Hispanic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vietnamese</td>
<td>Other Hispanic</td>
<td>Puerto Rican</td>
<td>South American</td>
<td>Spanish</td>
<td>US-born Hispanic</td>
<td>White-Hispanic of Mexican ancestry</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Terms shown are only a subset of those identified during article review.
† n, no. of terms used to describe each category.
Table 2 shows examples of the exact terms used by article authors to describe racial or ethnic categories and demonstrates the extraordinary diversity of categories in the 919 articles that used a racial or ethnic variable. For display, we have grouped the diverse terms by the following, more familiar or traditional general categories: 1) Asian, 2) Black, 3) Hispanic, 4) White, 5) other, 6) unknown or missing, 7) mixed race or ethnicity, and 8) additional terms. These groupings are for the purposes of this study only, and we recognize that others perhaps would group terms differently. The heterogeneity, which can exist within broad racial or ethnic categories, is displayed in the 46 terms used to describe different peoples of Hispanic ethnicity (e.g., Cuban, Dominican, Mexican, Puerto Rican, Spanish, US-born Hispanic). Additionally, these examples of terms indicate that racial or ethnic categories used in different studies may be contradictory (e.g., Black Hispanic and Black non-Hispanic, White/other and Black and other, and neither Black nor White, nonminority (other), and other non-White). Only a small number of categories representing mixed race or ethnicity were reported.

Despite the diversity of categories displayed in table 2, the number of racial or ethnic categories described in each article ranged from 0 to 24, with an average of 3.14 categories per variable. In addition, the overall mean number of categories that each journal used to identify race or ethnicity was similar. An article that mentioned race or ethnicity but did not provide categories was reported to have 0. The average number of categories of race or ethnicity reported in each of the 919 American Journal of Epidemiology and American Journal of Public Health articles was less than four, and the average number of categories varied only slightly between 1996 and 1999. In both journals, the number of categories of race or ethnicity reported during 1998 decreased slightly, but the mean number of categories reported in both journals in 1999 was similar to the means reported in 1996. Of the 919 articles that contained references to race/ethnicity, 787 (85.6 percent) described more than one category for this variable. Table 3 illustrates the proportion of articles using the five most common categories of race or ethnicity among the journal articles that used more than one category (n = 787). The most common racial or ethnic category reported was “White” (86.8 percent), followed by “Black” (76.5 percent), “Hispanic” (44.1 percent), and “Asian” (22.4 percent). The “other” category was reported in 299 (38.0 percent) articles.

Table 4 describes where in the article (the position) the variables race or ethnicity were mentioned, the stated purpose of using these variables, and the stated method of use in the analysis (in the article authors’ own words). In both journals, race or ethnicity was mentioned in results tables most often compared with other sections (85.6 percent). The highest single specified purpose of use was as a demographic variable (17.5 percent); however, in 57.4 percent of the articles, the purpose for using race or ethnicity as variables was not described. Similarly, although the highest single specified method of use was to adjust for (16.8 percent), almost half of the articles reviewed (48.7 percent) failed to state the method of using race or ethnicity in the analysis phase of the reported study. Figures 2 and 3 illustrate slight differences between the American Journal of Epidemiology and the American Journal of Public Health in trends over time in terms of purpose and method of using race and ethnicity.
Table 4 also describes the method used to assess race or ethnicity in the articles that were reviewed. The most commonly stated methods of assessing race were preexisting records such as medical records (18.4 percent) and subject self-report (14.9 percent). The least commonly stated methods in both journals were definition by others (0.4 percent).
percent) and visual interpretation (0.5 percent). Race or ethnicity was surname-surmised in 1.4 percent of the articles reviewed. However, the majority of articles (63.4 percent) failed to state how race or ethnicity was assessed.

Finally, table 4 shows that, overall, 55.3 percent of the articles described statistically significant findings related to race or ethnicity, while only 30.4 percent of authors discussed their findings and only 18.7 percent called for further research related to their findings. Only rarely were policy recommendations made on the basis of findings associated with race or ethnicity.

**DISCUSSION**

Three previous reviews of the use of race and ethnicity as research variables in the scientific literature reported methodological problems associated with the use of these variables. In 1991, Jones et al. (6) concluded from their study of articles published in the 1921, 1930, 1940, 1950, and 1960 volumes of the *American Journal of Hygiene* and the 1965, 1970, 1975, 1980, 1985, and 1990 volumes of the *American Journal of Epidemiology* that researchers should justify the use of race as a scientific variable, explain how race was measured, include measures of other factors such as socioeconomic status as appropriate, and interpret any observed race-associated differences. In 1994, Williams (10) concluded from his study of articles published in *Health Services Research* from 1966 to 1990 that there was a need for more careful attention to the conceptualization and measurement of race, that researchers should as much as possible avoid conglomerate terms for racial groups, that there was a need for more accurate definitions of racial and ethnic status, and that researchers should always report how race was assessed. In 1996, Ahdieh and Hahn (2) concluded from their study of articles published in the *American Journal of Public Health* from 1980 to 1989 that concepts and terminology for race, ethnicity, and national origin should be clearly and explicitly defined and that the scientific community needed to reach a consensus about the meaning of such concepts.

This comprehensive historical review of articles published in the *American Journal of Epidemiology* and the *American Journal of Public Health* from 1996 to 1999 provides a more current assessment of the use of race and ethnicity in epidemiologic and public health research. We found enormous diversity in the terms used by researchers to refer to race and ethnicity. When our findings are compared with those of prior researchers (6, 10), it is evident that the diversity of terms used to refer to the concepts of race and ethnicity as well as the diversity of terms used to categorize these concepts have expanded over time. The enormous diversity could be a result of one of two things. It could indicate that serious efforts are being made to include much more detailed information about the racial
background, cultural heritage, ancestry, and ethnicity of study subjects; or the diversity could be a result of an increasing trend to be more politically correct regarding these terms. Because of low rates of reporting of why these variables are used in research, it will be difficult to truly understand authors' intentions. However, regardless of the reason for the diversity of terms, when they were collapsed into aggregated categories, it was clear that “White” and “Black” continue to predominate the published research despite the changing demographics of our country.

We found a high prevalence of the use of race and ethnicity in the articles reviewed (76.7 percent referred to concepts of race or ethnicity), but we also found that the majority of the articles failed to describe the purpose for including race or ethnicity in the study; the method of assessing race or ethnicity, including the rationale behind the categorization of these variables; or the implications of significant findings pertaining to these variables. When our results are compared with prior research (2, 6, 10), it appears that the prevalence of the use of race or ethnicity has remained fairly constant since the mid-1980s in the American Journal of Epidemiology, while it has increased in the American Journal of Public Health (figure 1). A similar comparison with prior work (6, 10) reveals that the stated purpose and method of using race and ethnicity in the epidemiologic and public health literature has varied over time and by journal (figures 2 and 3).

In 2000, Lin and Kelsey discussed the use of race and ethnicity in epidemiologic research, and, similar to prior authors (2, 6, 10), concluded that epidemiologists “should continue to study racial and ethnic patterns of health and disease, but they should seek to improve upon the ways in which these concepts are captured” (12, p. 195). Some of their suggestions follow: 1) researchers should work to improve methods of assessing ethnicity, including addressing a subject’s identification with multiple ethnic groups; 2) researchers should try to separate the effects of socioeconomic, social class, education, and other factors from those of race and ethnicity; and 3) researchers should explain how race and ethnicity classifications were identified. Our review indicates that there is currently no consensus concerning the definition and categorization of race and ethnicity as scientific variables, the methods used to assess race and ethnicity, and the appropriate interpretation of the data obtained from using these variables. Given all of the possible ways in which racial and ethnic characteristics can be described and all of the potential causes that might explain racial disparities, perhaps it is not possible for the scientific community to come to a consensus on guidelines or standards for using these variables. Perhaps it is not even a desirable or achievable goal. However, it is possible for

FIGURE 3. Comparison of the proportion of journal articles that used race or ethnicity to stratify or adjust for in analysis. Health Services Research data are for midyear of the time periods shown in table 5 of Williams (10), and American Journal of Epidemiology data for 1921–1990 are estimated from information in figure 3 of Jones et al. (6). American Journal of Epidemiology and American Journal of Public Health data apply to articles that used race or ethnicity to stratify, control for, or adjust for in analysis.
researchers to carefully record and discuss why race or ethnicity is being used, how it is being assessed, and what the potential findings based on its use may imply.

Research should also begin to more frequently consider disparities within each racial or ethnic group rather than simply focusing on differences between them (19). There are distinct differences within racial groups in different geographic regions of the United States, such as the differences between the Hispanic populations of the Southwest and those of the Southeast. This factor will continue to increase in importance as racial groups in the United States become more intertwined. As the many diverse ingredients in the country’s “melting pot” become increasingly hard to define, differences based on racial classification will become more difficult to interpret. The etiologic clues embedded in observed racial differences will be better understood only after the complexities of the concepts of race and ethnicity are taken into account.

In conclusion, the use of race or ethnicity in epidemiologic and public health research affects the quantification and explanation of health outcomes, including health disparities. Although previous authors have questioned the value of using race and ethnicity as scientific variables have proposed methodological guidelines aimed at increasing the integrity of these variables, it is clear from our study that researchers have not yet come to a consensus concerning their use. Continued professional commitment is needed to ensure the scientific integrity of race and ethnicity as variables. At a minimum, researchers should clearly state the context in which these valuable epidemiologic and public health research variables are being used, describe the method used to assess these variables, and discuss all significant findings. Doing so will ensure continued constructive scientific dialog about the interpretation of findings regarding race or ethnicity and will promote the successful development of intervention strategies aimed at eliminating health disparities linked to race and ethnicity.

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REFERENCES