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Changes in Reporting of Race/Ethnicity, Socioeconomic Status, Gender, and Age Over 10 Years

Denise Brahan, MD, MPH, and Howard Bauchner, MD

ABSTRACT. *Background.* The recognition of health disparities as an important aspect of US health care has led to renewed interest in the reporting of race/ethnicity and socioeconomic status (SES) in original research reports.

Purpose. To describe reporting of race/ethnicity and SES, in comparison with age and gender, and to report changes with time.

Methods. All original research articles that focused on children and asthma that were published in *The Journal of the American Medical Association*, *The New England Journal of Medicine*, *Pediatrics*, *The Journal of Pediatrics*, and *Archives of Pediatrics and Adolescent Medicine* were reviewed for 2 time periods, 1991–1993 and 2000–2002. Each report was assessed for coding of age, gender, race/ethnicity (number of groups and which groups), and SES.

Results. In 1991–1993, 27 reports met the inclusion criteria; in 2000–2002, 74 were reviewed. Overall, significantly more reports described age (90.1%) and gender (78.2%) than SES (41.6%) and race/ethnicity (54.5%). During the 2 study periods, there were significant increases in studies reporting race/ethnicity (from 29.6% to 63.5%) but not in studies reporting SES or gender. Coding of race/ethnicity, even in the later time period, was largely confined to white (78.7%) and black (89.4%). Fewer reports coded Latino (55.3%) or Asian (14.9%). Only 2 of the 31 articles that coded Latino subjects contained information on ethnic subgroups, whereas none of the 8 articles included Asian subgroups.

Conclusions. Original research reports in a specific area (asthma) for which health disparities have been well documented still contain few data on race/ethnicity and SES, particularly in comparison with age and gender. There has been some improvement in the past decade in the reporting of race/ethnicity, but the reporting of Latino and Asian subgroups remains poor. If we are to understand health disparities, then more appropriate reporting of SES and race/ethnicity is necessary. *Pediatrics* 2005;115:e163–e166. URL: www.pediatrics.org/cgi/doi/10.1542/peds.2004-1437; *disparity, race, ethnicity, asthma.*

ABBREVIATION. SES, socioeconomic status.

Racial and ethnic disparities in US health care have been documented for several centuries.¹ Only recently has this issue garnered public attention, fueled by the civil rights movement and the first governmental acknowledgment of health care disparities in the 1985 *Report of the Secretary's Task Force on Black and Minority Health* by Margaret Heckler.² This interest increased dramatically during the 1990s, because of increasing evidence that there are significant disparities in various aspects of the US health care system.³ More recently, professional medical groups such as the American Academy of Pediatrics,⁴ the Institute of Medicine,⁵ and Physicians for Human Rights³ called for collection of data on race, ethnicity, and socioeconomic markers in research, to allow better understanding of the underlying differences in quality noted for many health outcomes. If these data are not collected, then disparities cannot be documented and progress toward decreasing these gaps cannot be monitored.

Two recent studies in this area collected and reviewed all original child health research articles published between July 1999 and June 2000 in 3 pediatric generalist journals.^{6,7} The findings suggested that child health research infrequently reports race and ethnicity and even less frequently reports socioeconomic status (SES).^{6,7} The authors proposed that future research examine the extent of reporting of race/ethnicity and SES coding for specific disease states and determine whether there has been a change in reporting over time, with increased interest in health disparities. In this study, we examined the changes in reporting of race, ethnicity, and SES, in comparison with age and gender, in the past decade. We focused on reporting for pediatric asthma because of its well-documented racial and ethnic disparities in health status, utilization, and outcomes.^{8–12}

METHODS

We selected and reviewed all original research articles that focused on asthma and included some or all children subjects in the published print editions of 5 journals, *The Journal of the American Medical Association*, *The New England Journal of Medicine*, *Pediatrics*, *The Journal of Pediatrics*, and *Archives of Pediatrics and Adolescent Medicine*, for 2 time periods, ie, 1991–1993 and 2000–2002. These periods were selected because of the rapid increase in articles on health care disparities in the 1990s. Articles were excluded if they did not contain (1) at least 1 US researcher, (2) all subjects at US institutions, and (3) some children <18 years of age.

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We excluded 1 additional article in which a previous publication was referenced for demographic characteristics.

We coded each article for reporting of age, gender, race and ethnicity (white, black, Latino, Asian, or other), and SES (insurance, education, income, employment, or other). Race and ethnicity were coded with categories stated in each article. All articles reporting black or African American were coded as black. All articles reporting white or white non-Hispanic were coded as white. All articles reporting Hispanic, Latino, Puerto Rican, white Hispanic, or black Hispanic were coded as Latino. All articles reporting Asian, Asian American, or Pacific Islander were coded as Asian. All articles reporting other, nonwhite, nonblack, or mixed were coded as other. Racial or ethnic groups were coded positively if they were reported but later excluded from analysis.

In addition, we coded for the subject of the study (child, parent, or provider), study design (prospective, retrospective, federal or state dataset, or cross-sectional), topic focus (diagnosis, therapy, utilization, or other), journal, and year of publication. The first author coded all articles, but the 2 authors reached coding consensus regarding articles for which coding categories were under question. When articles had 2 topic focuses (eg, therapy and utilization), the article was coded with the primary stated objective.

Data analyses of χ^2 associations between time periods and coding categories were performed with Stata version 8.0 software (Stata Corp, College Station, TX). Institutional review board approval was not sought because this study did not involve the study of human subjects.

RESULTS

In 1991–1993, 27 reports met inclusion criteria; in 2000–2002, 74 were reviewed. A total of 88% focused on the child as the subject of study. Most articles focused on therapy (35.6%), followed by diagnosis (20.8%) and utilization (15.8%). The rest of the articles were classified as other. Topics in the “other” category included school performance and quality of life; no single topic in this category represented >5% of the articles. The study design for most articles was prospective (44.6%) or retrospective (20.8%), whereas 14.9% of studies involved large federal or state datasets and 19.8% were cross-sectional studies. Twelve studies included both children and adults; the distribution did not differ between the 2 time periods (9.5% and 18.5%, $P = .21$).

Overall, significantly more reports described age (90.1%) and gender (78.2%) than SES (41.6%) and race/ethnicity (54.5%). There was a significant increase in the number of studies reporting race/ethnicity (from 29.6% to 63.5%, $P = .002$) in the 2 time periods (Table 1). Interestingly, there was a significant reduction in the number of reports containing data on age (from 100% to 86.5%, $P = .04$).

We examined which groups were being included among articles coding for race/ethnicity (Table 2). In both time periods, whites and blacks were included 81.8% and 87.3% of the time, respectively. Latinos

TABLE 1. Coding of Age, Gender, Race/Ethnicity, and SES Over Time

| Category | % Articles | | | <i>P</i> Value* |
|----------------|--------------------------------|-------------------------------|-------------------------------|-----------------|
| | All Years (<i>N</i> = 101) | 1991–1993 (<i>N</i> = 27) | 2000–2002 (<i>N</i> = 74) | |
| Age | 90.1 | 100.0 | 86.5 | .04 |
| Gender | 78.2 | 66.7 | 82.4 | .09 |
| Race/ethnicity | 54.5 | 29.6 | 63.5 | .002 |
| SES | 41.6 | 25.9 | 47.3 | .05 |

* *P* value for association of time period and coding category.

TABLE 2. Coding of Each Racial/Ethnic Group Over Time

| Race/ Ethnicity | % Articles | | | <i>P</i> Value* |
|--------------------|-------------------------------|------------------------------|-------------------------------|-----------------|
| | All Years (<i>N</i> = 55) | 1991–1993 (<i>N</i> = 8) | 2000–2002 (<i>N</i> = 47) | |
| White | 81.8 | 100.0 | 78.7 | .15 |
| Black | 87.3 | 75.0 | 89.4 | .26 |
| Latino | 54.5 | 50.0 | 55.3 | .78 |
| Asian | 14.5 | 12.5 | 14.9 | .86 |
| Other | 61.8 | 37.5 | 66.0 | .13 |

* *P* value for association of time period and racial/ethnic category.

and Asians were reported to a much lesser extent, even in the more-recent time period (55.3% and 14.9%, respectively). American Indians and Alaskan Natives were reported in only 3 of the 55 articles. Even when Asians, American Indians, and Alaskan Natives were included as a reported category, they were subsequently excluded from analysis in 1 of 8 and 1 of 3 articles, respectively. Articles rarely included ethnic subgroup information. Only 2 of the 31 articles describing Latino subjects contained information on ethnic subgroups, whereas none of the 8 articles included Asian subgroups. The percentage of articles coding for each racial and ethnic subgroup did not change significantly with time.

There was an increase in reporting of SES in the past decade (from 25.9% to 47.3%, $P = .05$). The 42 articles containing this information most commonly chose insurance, income, and education (47.6%, 45.2%, and 50%, respectively) as markers. There was no significant change in the types of SES data reported with time.

A restricted analysis of the 12 federal datasets and 2 state datasets showed that articles using these datasets as sources of information reported race/ethnicity 92.9% and SES 78.6% of the time. Whites and blacks constituted the majority of race/ethnicity categories reported (92.3% and 84.6%, respectively), followed by Latinos (53.9%) and Asians (15.4%). We found no significant association of race/ethnicity and SES with study design or topic focus.

DISCUSSION

Our results show that reporting of race/ethnicity and SES in research related to pediatric asthma has nearly doubled in the past decade. This reporting is not related to the type of data collection (eg, prospective or retrospective) or the topic of study (eg, diagnosis or therapy). Research in this area has focused on inclusion of whites and blacks, whereas reporting of specific growing racial/ethnic groups (Latinos and Asians) remains limited. In particular, ethnic subgroup information (eg, Filipino or Chinese) is rarely reported.

Walsh and Ross^{6,7} assessed coding of race/ethnicity and SES in all original articles ($N = 192$) in 3 leading pediatric generalist journals during a 1-year period beginning in June 1999; 59% reported race/ethnicity, 48% reported SES, and <40% reported both. Those authors also examined the representation of white, black, and Latino children in the studies. They found an overrepresentation of black subjects and an underrepresentation of white and Latino

children, in comparison with census data proportions. We found similar rates of reporting of race/ethnicity (63.5%) and SES (47.3%), values that have doubled over those for the previous decade. Although blacks and whites were reported in 78.7% and 89.4% of articles reviewed in our study, Asians and Latinos were reported in only 55.3% and 14.9% of the later studies (2000–2002), respectively. This finding is in contrast to the prevalence of asthma in the 2001 National Health Interview Survey, which indicated similar rates of asthma among whites, Latinos, and Asians (12.2%, 11.2%, and 11.3%, respectively).¹³

Separating race/ethnicity from SES remains difficult, because they are highly correlated. However, the importance of doing so was highlighted in a recent report by O'Connor et al¹⁴ on mortality rates among 23 817 patients with cystic fibrosis. In an analysis restricted to whites, an increased mortality rate was significantly associated with lower median household incomes, even after adjustment for gender and age at the time of diagnosis of cystic fibrosis. Reviews by Liberatos et al,¹⁵ Jolly et al,¹⁶ and Berkman and Kawachi¹⁷ suggested that markers of SES, such as income, occupation, and education, can positively affect health outcomes by providing better access to good nutrition, housing, job security, and social networks. As suggested by O'Connor et al,¹⁴ improved understanding of SES and its effects on health could reveal factors that are amenable to intervention. Routine collection and reporting of race/ethnicity and SES in research represent a step in that direction.

Federal datasets present an opportunity to include communities that are historically difficult to include in research. Articles using data from federal and state sources constituted 15% of the articles reviewed. Those articles reported race/ethnicity and SES at higher rates, compared with articles from other sources. However, the reporting of whites and blacks in those articles was far greater than that of Latinos and Asians. The large sample sizes could present a unique opportunity to collect meaningful information about ethnic subgroups. Of the >12 federal datasets available at the National Center for Health Statistics, only the National Health Interview Survey currently reports information on Asian subgroups. These surveys collect detailed information on race/ethnicity and SES beyond the 1997 Office of Management and Budget standards (white, black, Asian, Native Hawaiian/Pacific Islander, or Alaskan/Native American, with a separate question regarding Hispanic ethnicity), but most fail to report data for smaller minority populations because of small sample sizes.^{18–20} Supplemental samples for national surveys, such as the Hispanic Health and Nutrition Examination Survey, represent a potential solution for better inclusion of these racial and ethnic groups.

How does an individual investigator make decisions about whom to study? We think there are 3 issues that influence this decision. First, what is the question being asked? Inclusion of specific racial and ethnic groups is particularly important when existing evidence suggests that health disparities exist for

the condition being studied. Second, what resources are available to the investigator? Resources may limit the ability to include large sample sizes or to oversample minority populations. Finally, what is the local population available to the investigator? Inclusion of all groups may be particularly challenging in small, institutional studies. Investigators in areas with largely white and black populations who wish to study asthma controller medication adherence would not be able to recruit a sufficient number of Asian children for ethnic subgroup comparisons. Researchers who have available resources or who are in areas with racial/ethnic and SES diversity should recognize the need to include often-neglected groups.

In addition to race/ethnicity and SES, inclusion of subjects with limited English proficiency is important if we are to follow the 1994 NIH requirements to ensure access to women and minorities in clinical research.²¹ Limited English proficiency has been shown in various studies to have negative effects on health service access and utilization.^{22–26} Only 2 National Center for Health Statistics dataset collections are conducted in a non-English language (Spanish); none are conducted in Asian languages.¹⁸ Only 3 articles (all in the more-recent time period) reported information on primary language as a demographic variable. Inclusion of primary language data would enable researchers to investigate beyond race/ethnicity to factors amenable to intervention (such as language) that underlie health care utilization patterns. It is critical for us to understand the needs and health care usage patterns of growing minority groups such as Latinos and Asians, because census data indicate that these 2 groups of children will double in the next 50 years.²⁷

This study has a number of limitations. First, other studies suggested that authors might collect data on race/ethnicity and SES variables but not report them. Rivara and Finberg²⁸ argued that race/ethnicity should be included only for select research questions for which there is a “biological, scientific, or sociological reason for doing so.” However, because of the rapid advances in the understanding of gene-environment interactions, it is often difficult to know the importance of the effects of race/ethnicity on outcomes.²⁹ In addition, this study focused on a condition (asthma) for which health care disparities are well documented. Second, our sample size was limited and we might not have had the power to detect small differences with time, although the sample was large enough for detection of general increases in the reporting of race/ethnicity and a nearly significant increase in the reporting of SES with time. We sampled reporting for a specific health topic, and the generalizability of our results to other disease states is not clear. However, we selected a disease with known health disparities, for which reporting of race/ethnicity and SES would be more relevant. Finally, investigators can enroll only subjects of different race/ethnicity and SES who are available to them. Exclusion of Latino and Asian racial/ethnic categories may reflect where the research was con-

ducted; we were unable to examine the racial/ethnic distributions of subjects available to investigators.

Our data found that reporting of race/ethnicity and SES in the pediatric asthma literature improved in the past decade. That reporting, however, focused primarily on whites and blacks, leaving growing minority groups such as Latinos and Asians relatively underrepresented. As suggested by numerous national professional societies, more appropriate reporting of SES and race/ethnicity, with improved inclusion of Latino and Asian groups and their subgroups, is necessary if we are to understand and to address health disparities.

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