

Faculty Self-reported Experience with Racial and Ethnic Discrimination in Academic Medicine

Neeraja B. Peterson, MD, MSc, Robert H. Friedman, MD, Arlene S. Ash, PhD, Shakira Franco, MS, Phyllis L. Carr, MD

BACKGROUND: Despite the need to recruit and retain minority faculty in academic medicine, little is known about the experiences of minority faculty, in particular their self-reported experience of racial and ethnic discrimination at their institutions.

OBJECTIVE: To determine the frequency of self-reported experience of racial/ethnic discrimination among faculty of U.S. medical schools, as well as associations with outcomes, such as career satisfaction, academic rank, and number of peer-reviewed publications.

DESIGN: A 177-item self-administered mailed survey of U.S. medical school faculty.

SETTING: Twenty-four randomly selected medical schools in the contiguous United States.

PARTICIPANTS: A random sample of 1,979 full-time faculty, stratified by medical school, specialty, graduation cohort, and gender.

MEASUREMENTS: Frequency of self-reported experiences of racial/ethnic bias and discrimination.

RESULTS: The response rate was 60%. Of 1,833 faculty eligible, 82% were non-Hispanic white, 10% underrepresented minority (URM), and 8% nonunderrepresented minority (NURM). URM and NURM faculty were substantially more likely than majority faculty to perceive racial/ethnic bias in their academic environment (odds ratio [OR], 5.4; $P < .01$ and OR, 2.6; $P < .01$, respectively). Nearly half (48%) of URM and 26% of NURM reported experiencing racial/ethnic discrimination by a superior or colleague. Faculty with such reported experiences had lower career satisfaction scores than other faculty ($P < .01$). However, they received comparable salaries, published comparable numbers of papers, and were similarly likely to have attained senior rank (full or associate professor).

CONCLUSIONS: Many minority faculty report experiencing racial/ethnic bias in academic medicine and have lower career satisfaction than other faculty. Despite this, minority faculty who reported experiencing racial/ethnic discrimination achieved academic productivity similar to that of other faculty.

KEY WORDS: schools, medical; minority groups; faculty, medical; prejudice; job satisfaction.

J GEN INTERN MED 2004;19:259–265.

Minority faculty make up approximately 17% of full-time faculty in U.S. medical schools; just 4% are from underrepresented minority groups.¹ The underrepresented minorities (URM) are defined as African Americans, Mexican Americans, mainland Puerto Ricans, and American Indians. Each URM group is substantially less prevalent in medicine than in the general population.² In comparison, approximately 30% of the U.S. population classify themselves as nonwhite and about 22% are from URM groups.³ Recruiting and retaining minority faculty in academic medicine is important. Yet, little is known about the faculty experience of minorities, especially with regard to racial and ethnic discrimination, and how such experience affects their career satisfaction and academic success. Our study examines the frequency of self-reported experiences of racial/ethnic bias among faculty in U.S. medical schools, as well as associations of such experience with career satisfaction, and with academic productivity as evidenced by the number of peer-reviewed publications and academic rank.

METHODS

Study Design

In 1995, we conducted a national mailed survey, described in detail elsewhere,⁴ to examine the status of minority, women, and generalist faculty in academic medicine. We used 2-stage sampling to select a sample of U.S. medical school faculty. In the first stage, we randomly selected 24 medical schools. Of the 126 medical schools listed by the Association of American Medical Colleges (AAMC) in 1995, we excluded 6 schools outside the contiguous United States because the AAMC considers them to be significantly different from the mainland schools. To obtain adequate numbers of female and minority faculty from each institution, we also excluded 14 schools that had fewer than 200 total faculty, 50 female faculty, or 10 minority faculty. Our 24 medical schools were randomly selected from the remaining 106 eligible medical schools. The resulting sample of schools was balanced across the AAMC's 4 U.S. regions and between public and private institutions.

In the second stage, we selected full-time, salaried faculty members from the 24 schools using the 1994 AAMC Faculty Roster System. The AAMC listed 17,434 faculty at the 24 schools; 720 faculty were excluded because they were in unique departments not found at other medical schools. Of the remaining 16,714 faculty, 4,156 (25%) were women, 929 (6%) were minority, and 869 (6%) were generalists. For each institution, we employed a $4 \times 3 \times 2$ factorial design for stratification. The factors were: 4 areas of medical specialization (primary care, basic science, medical specialties, and surgical specialties), 3 graduation cohorts

Received from the Center for Health Services Research (NBP), Division of General Internal Medicine, Department of Medicine, Vanderbilt University School of Medicine, Nashville, Tenn; and Section of General Internal Medicine (RHF, ASA, SF, PLC), Boston University School of Medicine, Boston, Mass.

This work was presented in part at the National Meeting of the Society of General Internal Medicine, May 2001, San Diego, Calif.

Address correspondence and reprint requests to Dr. Peterson: Center for Health Services Research, Suite 6000, Medical Center East, Nashville, TN 37232 (e-mail: neeraja.peterson@vanderbilt.edu).

(receiving doctorate degree prior to 1970, between 1970 and 1980, and after 1980), and gender. Within each cell (school \times medical specialty \times graduation cohort \times gender), we sought 6 faculty. The most senior cells (by graduation cohort) were filled first and then backfilled, if necessary, with more junior faculty. To obtain sufficient numbers, the sample was supplemented to include all minority, generalist, and senior women faculty. Due to confidentiality concerns of the AAMC, the mailed surveys were delinked from the sampling frame, making it impossible to separately calculate response rates within sampling strata.

Data Collection and Survey Instrument

We mailed 4,405 surveys to sampled faculty, of which 1,073 were ineligible, either because they had left their institutions (512), were not full time (510), had died (11), had participated in the pilot sample (9), or other reasons (31). Of the eligible 3,332 faculty, nonrespondents received reminder postcards, follow-up telephone calls, and survey remailings as necessary. One hundred forty-six respondents were excluded for one or more of the following reasons: they did not self-identify race/ethnicity (30), did not answer questions about bias (42), rank (95), or department (68), or did not complete most of the questionnaire (7).

The self-administered questionnaire asked 177 questions about faculty demographics, experiences of bias, discrimination, and harassment, professional goals and work situation, current academic environment and rank, academic productivity, faculty compensation, and career satisfaction. Approximately 10% of the survey items related to race-based discrimination, which could have occurred at any time over the faculty member's career. The Boston University School of Medicine Institutional Review Board approved this study.

Definitions of Variables and Outcome Measures

We divided faculty respondents' self-reported race/ethnicity into 3 categories as defined by the AAMC: underrepresented minority (URM; non-Hispanic Black; Mexican American and Puerto Rican Hispanic; Native American or Alaskan Native), nonunderrepresented minority (NURM; Asian and other Hispanic groups), and majority (non-Hispanic white). We coded specialties as follows: primary care (general internal medicine, general pediatrics, family medicine, and geriatrics); medical specialties (internal medicine subspecialties, pediatric subspecialties, neurology, physical medicine, radiology, emergency medicine, anesthesia, and psychiatry); surgical specialties (general surgery and its subspecialties); and basic science. We asked respondents to estimate the number of hours worked during an average professional work week and the amount of time spent in research, patient care, teaching, and administration.

We asked 3 questions to characterize the experience of racial/ethnic bias: 1) "Do you perceive any racial/ethnic biases or obstacles to the career success or satisfaction of faculty by race/ethnicity in your academic environment

(1 = no, never to 5 = yes, frequently)?" 2) "In your professional career, have you ever been left out of opportunities for professional advancement based on race/ethnicity (1 = no, 2 = not to my knowledge, 3 = possibly, 4 = probably, 5 = yes)?" and 3) "In your professional career, have you personally encountered racial/ethnic discrimination (unfair or injurious distinction or treatment) by a superior or colleague (1 = no, 2 = yes)?"

Faculty who answered "yes" to question 3 were asked 5 questions to capture the extent and severity of the racial/ethnic discrimination they experienced: 1) "How much of a problem has this been for you (1 = no problem to 5 = major problem)?" 2) "Have you encountered racial/ethnic remarks (1 = no, 2 = yes)?" 3) "Have you encountered inadequate recognition of your work (1 = no, 2 = yes)?" 4) "To what extent have these experiences had a negative effect on your confidence as a professional (1 = not at all to 5 = greatly)?" and 5) "To what extent have these experiences negatively affected your career advancement (1 = not at all to 5 = greatly)?"

We also asked all faculty about several subjective and objective outcomes. To capture career satisfaction, we used a scale consisting of 4 items: "How satisfied are you with 1) your current work setting, 2) your potential to achieve your professional goals, 3) your overall professional practice and/or research, and 4) the extent to which this practice and/or research has met your expectations?"⁵ Each item was measured on a Likert scale ranging from 1 (very dissatisfied) to 5 (very satisfied) (Cronbach's $\alpha = 0.87$). Two other subjective outcome variables were measured from questions with 5-point Likert scales. These were 1) "To what extent do you feel like a welcomed member in your institution?" and 2) "How likely are you to leave academic medicine within 5 years and go into another line of work?"

Career outcome variables included senior rank (associate or full professor), salary, total career publications in refereed journals, and grants funded. Salary was 1995 pretax faculty compensation and included salary and other professional payments, but excluded fringe benefits. Grants funded was the number of grants with the respondent as the principal investigator that had received funding within the previous 2 years. Missing responses to numbers of publications or grants funded were treated as zeros.

Analysis

Frequency distributions, means, and standard deviations of characteristics were used to describe the survey respondents by minority status (URM, NURM, and majority). The distributions of characteristics among majority faculty reflect the factorial sampling design. For example, the design sought approximately even numbers of men and women majority faculty. In contrast, minority respondent characteristics reflect a full-census sampling of all minority faculty at the selected medical schools.

For questions that captured the perceptions or experiences of racial/ethnic bias, we used a 5-point Likert

scale, and scored any response of 3, 4, or 5 as positive. The magnitude of differences among racial/ethnic groups did not significantly change when responses of only 4 or 5 were scored as positive.

We used multivariable analyses to test for relationships between faculty characteristics and perceptions and/or experiences of racial/ethnic bias. The following variables appeared in all models: medical school, specialty (primary care, basic science, and medical and surgical specialties), minority status, gender, seniority (years since first faculty appointment), and seniority squared (to capture the declining influence of additional years on outcomes).

Analyses were performed using SAS statistical software, version 8.2 (SAS Institute Inc., Cary, NC). We used Fisher's exact test to compare the frequency of racial/ethnic discrimination by minority status, and linear regression (PROC GLM) to estimate the effects of having experienced racial/ethnic discrimination on feelings of welcome-ness, likelihood of leaving the current institution, career satisfaction, salary, number of publications, and number of grants funded. We used logistic regression (PROC LOGISTIC) to estimate the effect on attainment of senior rank. In additional analyses, we also controlled for number of hours worked per week, percentage of time in research, and percentage of time in clinical work. Because we found few differences compared to the models using the original linear regression covariates described above, the results of the models using only the original list of variables are reported. We tested for multicollinearity between dependent variables in our models with the TOL and VIF options. We tested for interactions between minority status and the experience of racial/ethnic discrimination on all outcomes (career satisfaction, feelings of welcome-ness, likelihood of leaving the current institution, attainment of senior rank, salary, number of publications, and number of grants funded). We used mixed-effects regression modeling (PROC MIXED) to address clustering by medical school and compared the results to the findings using PROC GLM.

None of the authors had any potential conflicts of interest. Authors had full access to all of the data in the study, and accept full responsibility for the integrity of the data and the accuracy of the data analysis. The Robert Wood Johnson Foundation funded the study but had no role in its design, conduct, or reporting.

RESULTS

Demographics and Professional Characteristics

Of the 3,332 eligible faculty study subjects, 1,979 returned the survey for a response rate of 60%. Eighty-two percent of respondents identified themselves as non-Hispanic white (majority), 10% as URM (Blacks [8%], Mexican Americans [1%], Puerto Ricans [1%], Native Americans or Alaskan Natives [0.3%]), and 8% as NURM (Asian or Pacific Islanders [7%] and other Hispanic Americans [1%]).

Table 1 shows the demographic and professional characteristics of faculty respondents by the 3 racial/ethnic

groups. Majority respondents were on average 2 years older and had been on the faculty for 2 years longer than minority respondents. More URM faculty were male (60%) than NURM (40%). NURM differed from the other 2 groups in how few were born in the United States (21% vs 74% and 88%, respectively) or had English as their primary language (65% vs 85% and 97%). The URM faculty were more likely to be in a medical specialty (45% vs 28% and 24%) and spent more time in clinical activities (39% vs 32% and 32%). They were less likely to be in the basic sciences (12% vs 28% and 25%), to be a full or associate professor (31% vs 41% and 58%), and had fewer career publications (15 vs 22 and 32).

Perceived Bias Attributed to Faculty Race/Ethnicity

Table 2 shows frequency of perceived racial/ethnic bias by minority status. Most (63%) of the URM faculty perceived racial/ethnic bias or obstacles to the career success or satisfaction of faculty in their academic environment compared to 50% of NURM and 29% of majority faculty. In the multivariable analyses, URM faculty had 5.4 times the odds of perceiving racial/ethnic bias in their academic environment than the majority faculty; NURM were also more likely than the majority faculty to perceive these problems (odds ratio [OR], 2.6). In addition, URM faculty and NURM faculty also significantly had more odds than the majority of having reported experiencing racial/ethnic bias in their professional advancement (OR, 12.8 and 6.9, respectively). Nearly half (48%) of URM and 26% of NURM faculty reported personally encountering racial/ethnic discrimination by a superior or colleague compared to 7% of the majority faculty.

Factors Associated with the Perception of Racial/Ethnic Bias

Other faculty characteristics were examined for associations with racial/ethnic bias. The following were significantly associated with reporting personal experiences of racial/ethnic bias: 1) increasing age (OR, 1.5 per 10 years; 95% confidence interval [CI], 1.1 to 2.1); 2) having a primary language other than English (OR, 1.8; 95% CI, 1.1 to 3.0); and 3) increasing number of hours worked (OR, 1.3 per 10 hours/week; 95% CI, 1.1 to 1.5). Medical school characteristics, including which medical school a faculty member was at, whether it was a private or public institution, and its regional location, were not significantly associated with reporting personal experiences of racial/ethnic bias.

Most faculty who reported personal experiences of racial/ethnic discrimination stated instances in which their work was inadequately recognized (78%, 78%, and 63% of URM, NURM, and majority, respectively; $P = .05$) (Table 3). Most also reported personally encountering racial/ethnic remarks ($P = .29$). Smaller numbers of faculty felt that the discrimination had been a major problem for them (32%, 19%, and 28% of URM, NURM, and majority, respectively; $P = .40$) or that it had a major effect on their professional

Table 1. Respondent Demographics and Professional Characteristics by Minority Status*

	Underrepresented Minority (N = 185)	Nonunderrepresented Minority (N = 141)	Majority (N = 1,507)
Demographics			
Mean age, y ± SD	44.1 ± 9.2	44.3 ± 9.5	46.5 ± 9.4
Male, %	60	40	51
Born in U.S., %	74	21	88
English as primary language, %	85	65	97
Professional characteristics			
Years as faculty, mean ± SD	9.7 ± 8.4	10.3 ± 9.0	12.0 ± 9.2
Medical degree (MD), %	79	70	67
Hours worked per week, mean ± SD	59 ± 14	58 ± 13	57 ± 12
Percent time spent in, mean ± SD			
Clinical activities	39 ± 27	32 ± 30	32 ± 29
Research	20 ± 25	34 ± 35	28 ± 29
Teaching	21 ± 15	17 ± 12	21 ± 15
Administration	19 ± 20	16 ± 18	19 ± 18
Specialty, %			
Primary care	26	26	32
Basic science	12	28	25
Medical specialty	45	28	24
Surgical specialty	17	17	18
Rank, %			
Full professor	16	18	30
Associate professor	15	23	28
Assistant professor	62	51	37
Instructor	8	8	4
U.S. region, %			
Northeast	35	40	38
South	21	15	23
Midwest	19	22	19
West	23	22	19
Public institution, %	59	52	51
Salary in thousands, mean ± SD	115 ± 63	101 ± 51	111 ± 58
Total career publications, mean ± SD	15.2 ± 25.8	22.0 ± 30.6	31.5 ± 42.2
Grants funded, mean ± SD [†]	1.1 ± 3.0	0.9 ± 1.7	1.2 ± 2.1
Career satisfaction score, mean ± SD [‡]	3.2 ± 0.9	3.4 ± 0.8	3.5 ± 0.9

* Information is missing on gender for 2, marital status for 15, country of birth for 1, primary language for 1, degree for 38, hours worked per week for 5, U.S. region for 21, institution for 12, and salary for 89.

[†] In the preceding 2 years.

[‡] From McGlynn's 4-item scale. Each item was measured on a Likert scale of 1 to 5 (1 = very dissatisfied, 5 = very satisfied). SD, standard deviation.

confidence (17%, 19%, and 18% of URM, NURM, and majority, respectively; $P = .95$). About a third of URM and NURM faculty who reported experiencing racial/ethnic discrimination felt that the experience had a major effect on their career advancement ($P = .51$).

Career Satisfaction and Personal Experience of Racial/Ethnic Discrimination

Faculty who had personally experienced racial/ethnic bias had lower career satisfaction scores than other faculty (adjusted mean scores, 3.2 vs 3.5, respectively; $P < .01$), and were less likely to feel welcomed at their institution (adjusted mean scores, 3.3 vs 3.9, respectively; $P < .01$) (Table 4). However, faculty who experienced racial/ethnic bias reported themselves as not more likely to leave academic medicine within 5 years (adjusted mean scores, 2.5 vs 2.3, respectively; $P = .17$). There was no evidence

of collinearity in the dependent variables of minority status and personal experience of discrimination. There were no significant interactions between minority status and the experience of racial/ethnic discrimination at the $P \leq .05$ level on career satisfaction outcomes. Mixed-effects regression modeling did not alter any study findings.

Associations with Career Outcomes

There were no statistically significant associations between the personal experience of racial/ethnic bias and attainment of career outcomes including senior rank (full or associate professor), salary, number of career publications, or number of grants funded in the previous 2 years (all $P > .1$) (Table 5). We found that URM faculty and NURM faculty were less likely to attain senior rank (OR, 4.4; 95% CI, 2.6 to 7.7 and OR, 2.0; 95% CI, 1.1 to 3.5, for URM and NURM, respectively) after adjustment for self-reported

Table 2. Perception and Experience of Racial/Ethnic Bias by Minority Status*

	Reported Percent	Adjusted OR [†]	95% CI
Respondents who perceived racial/ethnic bias in the academic environment [‡]			
URM	63	5.4	3.8 to 7.8
NURM	50	2.6	1.8 to 3.7
Majority	29	1.0	–
Respondents who personally experienced racial/ethnic bias in professional advancement [§]			
URM	54	12.8	8.7 to 18.7
NURM	36	6.9	4.5 to 10.5
Majority	8	1.0	–
Respondents who personally experienced racial/ethnic discrimination by a superior or colleague			
URM	48	12.3	8.4 to 18.2
NURM	26	5.0	3.2 to 7.8
Majority	7	1.0	–

* Underrepresented minorities (URM): n = 185; nonunderrepresented minorities (NURM): n = 141; majority: n = 1,507.

[†] Adjusted for medical school, specialty, gender, and years since first faculty appointment. All P values <.01.

[‡] Five-point Likert scale with 1 = no, never; 5 = yes, frequently, and 3 to 5 scored as positive. If only 4 or 5 was scored as positive, "Reported Percent" were 41% for URM, 29% for NURM, and 14% for majority.

[§] Five-point Likert scale with 1 = no, 2 = not to my knowledge, 3 = possibly, 4 = probably, 5 = yes, and 3 to 5 scored as positive. If only 4 or 5 was scored as positive, "Reported Percent" were 33% for URM, 19% for NURM, and 4% for majority.

^{||} 1 = no, 2 = yes.

OR, odds ratio; CI, confidence interval.

personal experiences of discrimination, medical school, specialty, minority status, gender, seniority, and seniority squared. Tests for effect modification revealed no significant interactions between minority status and the experience of racial/ethnic discrimination on career outcomes, and there was no evidence of collinearity between the 2 dependent variables. Additionally, mixed-effects regression modeling did not alter any study findings.

DISCUSSION

Little is known about minority faculty's experience with racial and ethnic discrimination in academic medicine. In our study of a national sample of academic faculty, we were able to address both subjective perceptions and objective career outcomes of racial/ethnic discrimination, not just its frequency. We found that substantial numbers of both URM and NURM faculty perceived racial bias in

their academic environment, while majority faculty infrequently perceived such bias. Nearly half of URM and over a quarter of NURM faculty reported personal encounters with racial/ethnic discrimination by a superior or a colleague.

Having a primary language other than English was associated with the experience of racial/ethnic bias, independent of minority status; we can speculate that having accented speech may make some faculty have "outsider" status. In addition, older faculty perceived more racial/ethnic bias. This finding may indicate a real improvement in that younger minority faculty are less likely to have a negative experience. However, it may simply reflect that longer careers provide more opportunity to encounter bias.

Previous studies have shown disparities in the promotion of minority faculty. Petersdorf et al. reported that minority faculty with an MD degree in 1989 were promoted to the associate professor level 3 to 7 years later than white

Table 3. Perceptions Among Faculty Reporting a Personal Experience of Racial/Ethnic Discrimination by Minority Status

Effect	Underrepresented	Nonunderrepresented	Majority, % (N = 104)	P Value
	Minority, % (N = 89)	Minority, % (N = 37)		
Personally encountered inadequate recognition of work*	78	78	63	.05
Personally encountered racial/ethnic remarks*	79	69	70	.29
Racial/ethnic bias has been a major problem for me ^{†‡}	32	19	28	.40
Racial/ethnic bias has had a major effect on the following ^{§§}				
Professional confidence	17	19	18	.95
Career advancement	32	33	22	.51

* 1 = no, 2 = yes.

[†] Five-point Likert scale with 1 = no problem, 5 = major problem.

[‡] Major problem or effect defined as a response of 4 or 5 compared to responses of 1 or 2.

[§] Five-point Likert scale with 1 = not at all, 5 = greatly.

Table 4. Career Satisfaction by Personal Experience of Racial/Ethnic Discrimination

Outcome	Personally Experienced Discrimination (N = 230)	Did Not Personally Experience Discrimination (N = 1,603)	Adjusted P Value*
Mean career satisfaction score [†]	3.2 ± 0.06	3.5 ± 0.02	< .01
Felt like a welcomed member in institution [‡]	3.3 ± 0.08	3.9 ± 0.03	< .01
Likely to leave academic medicine within 5 years [§]	2.5 ± 0.11	2.3 ± 0.04	.17

* Adjusted for medical school, specialty, minority status, gender, and years since first faculty appointment.

[†] From McGlynn's 4-item scale. Each item was measured on a Likert scale of 1 to 5 (1 = very dissatisfied, 5 = very satisfied).

[‡] Five-point Likert scale with 1 = unwelcome, 5 = fully welcomed.

[§] Five-point Likert scale with 1 = not at all likely, 5 = very likely.

faculty.² In an earlier study of this faculty sample, we showed that URM faculty were significantly more likely than majority faculty to not hold senior academic rank (OR, 3.4; 95% CI, 1.9 to 6.3 for URM, and OR, 1.6; 95% CI, 0.8 to 2.9 for NURM not holding senior rank, respectively, compared to majority faculty),⁶ similar to our results. Similarly, Fang et al. showed that URM faculty at the assistant professor rank and at the associate professor rank were less likely to be promoted when compared to majority faculty.⁷ Racial/ethnic discrimination may be the reason for the promotion disparity;^{7,8} however, our current study did not find faculty's personal experiences of racial/ethnic bias was associated with attainment of senior rank (full or associate professor) independent of minority status.

Our study showed that faculty who experienced racial/ethnic bias were less likely to feel satisfied with their careers and less likely to feel welcomed in their institutions than those who did not, and the difference was a "medium" effect size.⁹ This may explain why URM faculty as a group has been found to be less satisfied with their careers.¹⁰ This lack of satisfaction and belonging was present despite comparable salaries, numbers of publications, and grants. This finding may reflect that minority faculty are able to overcome their negative experiences at their institutions and still achieve high productivity in academic medicine. However, it may also reflect that we did not capture the true experience of all minority faculty because we did have a 40% nonresponse rate to our survey. We also had no way

of capturing the experience of minority faculty who had already left academic medicine. To the extent that discrimination contributes to leaving, we may have underrepresented the frequency of racial/ethnic bias, and underestimated its professional impact.

The major limitation of our study is that it is cross-sectional and cannot follow the effects of racial/ethnic discrimination on faculty careers over time. Even though we report associations of racial/ethnic discrimination with several outcomes, we cannot determine cause and effect. For example, we cannot distinguish whether the perception of racial/ethnic bias results in lower job satisfaction or whether lower job satisfaction increases the perception of racial/ethnic bias. Our self-reported questionnaire format is not able to explore the qualitative experience of racial/ethnic discrimination. We examined racial/ethnic discrimination by superiors and colleagues only and did not explore other possible sources of such problems, including patients and hospital staff. We do not know how well our data reflect the current academic environment for minority faculty, as the discrimination that we captured could have occurred at any point in the academic careers of the respondents. Finally, the results that we report are several years old. Since 1995, academic institutions have continued to place increasing importance on minority faculty issues and cultural competence. Thus, the academic environment for minority faculty may have significantly improved since our study was conducted.

Table 5. Career Outcomes by Personal Experience of Racial/Ethnic Discrimination

Outcome	Personally Experienced Discrimination (N = 230)	Did Not Personally Experience Discrimination (N = 1603)	Adjusted P Value*
Senior rank [†]	OR, 1.1 (95% CI, 0.7 to 1.7)	–	.77
Salary, × \$1000 ± SD	107 ± 3.6	112 ± 1.3	.25
Total career publications, n ± SD	26.0 ± 2.5	28.9 ± 0.9	.27
Grants funded, n ± SD [‡]	1.3 ± 0.2	1.1 ± 0.1	.15

* Adjusted for medical school, specialty, minority, gender, and years since first faculty appointment.

[†] Full professor or associate professor.

[‡] In the preceding 2 years.

OR, odds ratio; CI, confidence interval.

Our study has several strengths. We determined the frequency of racial/ethnic bias among a large group of medical faculty across all medical school departments using a national database. Because our study was part of a larger study examining the status of faculty in academic medicine, response bias should be less than in a more narrowly focused study of racial bias and discrimination only.

The high frequency of perceived racial/ethnic discrimination among minority faculty is concerning. Understanding the reasons for this and addressing the causes is both a moral and social issue for medical schools and teaching hospitals. In our study, we were not able to show that racial/ethnic discrimination explained the disparities in academic advancement found in other studies and our previous work. Therefore, other explanations for disparities in academic promotion among minority faculty must be pursued.

We thank Anita Palepu, MD, MPH for her assistance and expertise on minority faculty issues. We would also like to acknowledge Mark A. Moskowitz, MD (deceased) for his contributions to the design of this study. This work was supported in part by a grant from the Robert Wood Johnson Foundation.

REFERENCES

1. U.S. Medical School Faculty, 2000. Available at: <http://www.aamc.org/findinfo/infores/datarsc/facros/frspubs/usmsf00/start.htm>. Accessed July 17, 2001.
2. Petersdorf RG, Turner KS, Nickens HW, Ready T. Minorities in medicine: past, present, and future. *Acad Med.* 1989;65:663-70.
3. Profile of General Demographic Characteristics, 2000 Census of Population and Housing, United States. Available at: <http://www.census.gov/prod/cen2000/dp1/2kh00.pdf>. Accessed August 17, 2001.
4. Carr PL, Ash AS, Friedman RH, et al. Faculty perceptions of gender discrimination and sexual harassment in academic medicine. *Ann Intern Med.* 2000;132:889-96.
5. McGlynn EA. Physician Job Satisfaction. Its Measurement and Use as an Indicator of System Performance. Santa Monica, Calif: RAND; 1989.
6. Palepu A, Carr PL, Friedman RH, Ash AS, Moskowitz MA. Minority faculty and academic rank in medicine. *JAMA.* 1998;280:767-71.
7. Fang D, Moy E, Colburn L, Hurley J. Racial and ethnic disparities in faculty promotion in academic medicine. *JAMA.* 2000;284:1085-92.
8. Cohen JJ. Time to shatter the glass ceiling for minority faculty. *JAMA.* 1998;280:821-2.
9. Cohen J. *Statistical Power Analysis for the Behavioral Sciences.* 2nd edn. Hillsdale, NJ: Lawrence Erlbaum Associates; 1988.
10. Palepu A, Carr PL, Friedman RH, Ash AS, Moskowitz MA. Specialty choices, compensation, and career satisfaction of underrepresented minority faculty in academic medicine. *Acad Med.* 2000;75:157-60.