The Prevalence, Distribution, and Mental Health Correlates of Perceived Discrimination in the United States*

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The survey data presented here are on the national prevalences of major lifetime perceived discrimination and day-to-day perceived discrimination; the associations between perceived discrimination and mental health; and the extent to which differential exposure and differential emotional reactivity to perceived discrimination account for the well-known associations between disadvantaged social status and mental health. Although more prevalent among people with disadvantaged social status, results show that perceived discrimination is common in the total population, with 33.5 percent of respondents in the total sample reporting exposure to major lifetime discrimination and 60.9 percent reporting exposure to day-to-day discrimination. The associations of perceived discrimination with mental health are comparable in magnitude to those of other more commonly studied stressors, and these associations do not vary consistently across subsamples defined on the basis of social status. Even though perceived discrimination explains only a small part of the observed associations between disadvantaged social status and mental health, given its high prevalence, wide distribution, and strong associations with mental health, perceived discrimination needs to be treated much more seriously than in the past in future studies of stress and mental health.

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The purpose of our report is to carry out a preliminary evaluation of the prevalence, distribution, and mental health correlates of perceived discrimination in the United States based on results obtained in a recently completed large-scale national survey. This report's focus is on exposure and mental health effects of perceived discrimination among socially disadvantaged people defined in terms of ascribed statuses (women, nonwhites, younger people in the age range of the sample) and achieved statuses (low education, low income, and unmarried).

We began the investigation with the primary hypothesis that greater exposure to perceived discrimination accounts for part of the associations consistently documented between disad-

vantaged social statuses and measures of mental health. However, we did not expect discrimination to explain all of these associations, as we know that other factors also play a part in the mental health differences between women and men, blacks and whites, and people who differ in other statuses. Our secondary hypothesis was that the role of perceived discrimination in helping to explain the associations between disadvantaged social status and mental health would be largely due to differences in exposure rather than to differences in vulnerability. Our reasoning here was that groups exposed to systematic discrimination were expected to develop emotion-focused coping strategies that blunt the effects of these stresses on mental health. Although it might be that low access to objective coping resources cancels out any advantage of these emotion-focused strategies, we did not expect differences in emotional vulnerability to be as pronounced as differences in exposure due to the presumed existence of these strategies. At the present time, we remain largely, although not completely (Krieger 1990), unaware of the extent to which variations of this sort exist.

DISCRIMINATION AS A STRESSOR

Stress research has been dominated over the past two decades by an interest in the fact that some people are more emotionally reactive to stress than others. This "differential vulnerability," as it is often called, has been proposed as the major dynamic underlying such long-observed patterns as the higher prevalence of psychological distress among lower status people (Adler et al. 1994). Much of the theoretical development and empirical research on stress processes over this period of time has been concerned with proposed determinants of differential vulnerability such as neuroticism (Henderson, Byrne, and Duncan-Jones 1981), maladaptive coping (Lazarus 1993), and inadequate social support (Sarason, Sarason, and Gurung 1997). In comparison, over the past two decades, few stress researchers have been interested in refining measures of stress exposure, although notable exceptions include the work of Brown and Harris (1978) on contextual measures of life events, Pearlin and his colleagues (1981) on chronic role-related stress, and Kanner and his colleagues (1991) on day-to-day stressors.

Recently, a new appreciation has emerged of the importance of differential exposure. This new interest is based on the realization that comprehensive stress measurement documents more powerful effects of stress exposure on mental health than previously thought (Turner and Lloyd 1995) and that accurate assessment of differential vulnerability requires that the people being compared have been exposed to the same stressors (Cohen, Kessler, and Gordon 1995). The confusion of differential exposure and vulnerability is perhaps most clear in recent efforts to unpack complex life events into their component parts (Kessler 1997). This work has shown that what appears at a superficial level to be differential vulnerability often turns out, on closer inspection, to be differential exposure. For example, the greater emotional impact of widowhood on men than women has been shown to be largely due to the fact that widowhood exposes men to more severe secondary stresses than women (Umberson, Wortman, and Kessler 1992).

One of the most important classes of stressors from this perspective are types of unfair treatment associated with discrimination. It has long been known that exposure to discriminatory behavior is an important feature of life for socially disadvantaged groups in the United States, including women (Gardner 1995), racial minorities (Sigelman and Welch 1991), and the poor (Sennett and Cobb 1973). Numerous focused studies suggest that discrimination has powerful adverse effects on emotional well-being (Amaro, Russo, and Johnson 1987; Dion, Dion, and Pak 1992; Meyer 1995; de Snyder 1987; Thompson 1996; Williams and Chung forthcoming). Yet, most conventional life events scales fail to include questions about discrimination.

As Thoits (1983) noted over a decade ago, this failure to consider the effects of discrimination could account for why empirical research has been unable to show that differential exposure to stress plays an important part in explaining the higher prevalence of psychological distress among lower status people. In addition, it could lead to bias in estimating differential vulnerability due to the fact that discrimination is often a secondary stress associated with major stressor events. Consistent with this possibility, contextual rating studies show that perceived discrimination is one of the most important secondary stresses associated with major stressor events such as job loss and exposure to violence (Wethington, Brown, and Kessler 1995). This

means that failure to measure discrimination in addition to the major events with which it is often associated can lead incorrectly to the conclusion that minorities, women, and others exposed to high levels of discrimination are not coping well with certain stressor events when, in reality, they are being exposed to secondary stresses that their more socially advantaged counterparts do not confront.

THE MacARTHUR FOUNDATION MIDLIFE DEVELOPMENT IN THE UNITED STATES

The data we used to evaluate the two study hypotheses come from the MacArthur Foundation Midlife Development in the United States (MIDUS) survey, a large national general population survey carried out in 1996 (Kessler, Mickelson, and Zhao 1997; Keyes and Ryff 1998; Lachman and Weaver 1998). In designing the questions used to assess perceived exposure to discrimination in this survey, we cast a wide net. The rationale for this decision was based on the functional explanation commonly offered to account for the pervasiveness of discrimination in socially disadvantaged groups: that discrimination serves to reinforce the symbolic boundaries separating advantaged from disadvantaged social groups and, in this way, facilitates the maintenance of advantage for the former (Jackman 1994). If this were the case, we expected that discrimination would occur based on a wide variety of identifying characteristics. However, we do not know whether this theory is true, as only a small number of studies have examined discrimination based on characteristics other than gender, race, and class (e.g., Birt and Dion 1987; Butler 1975; Vaid 1995). Moreover, no national study has ever attempted to elicit information about a broad range of discriminatory experiences at once and to study relative prevalences as a function of the focus of discrimination. Therefore, rather than follow previous studies in asking only about discrimination on the basis of gender, race, or socioeconomic position, we designed a series of questions about discrimination without stipulating a basis for the discrimination and then asked open-ended questions to elicit reports about the perceived reasons for unfair treatment reported by the respondents. We expected that gender, race-ethnicity, and socioeconomic status would be the most commonly reported reasons for discrimination, but we also sought to discover the extent to which other reasons for perceived discrimination were reported.

The MIDUS assessment of discrimination also went beyond previous surveys of discrimination in two other important ways. First, rather than follow most previous research in relying on single-item vaguely worded questions about exposure to discrimination, the MIDUS questions were based on concretely worded multi-item scales. The latter have been shown to produce much more accurate estimates of the true prevalence of discrimination than more conventional single-item questions (Bobo and Suh 1995; Sigelman and Welch 1991). Second, the MIDUS assessment of discrimination included separate evaluations of the lifetime occurrence of major episodic experiences, such as being denied a bank loan or being passed over for a job promotion, as well as of the occurrence of more minor unfair experiences, such as being treated rudely or dismissively. To our knowledge, no previous national survey has ever studied discrimination using multiple indicators of both acute and chronic discriminatory experience.

Despite these advantages over previous research, we must note two important limitations of this investigation at the onset. First, the results reported here are based on an analysis of discrimination divorced from a larger assessment of stress exposure. This separation is neccessary because the survey on which the analysis is based does not have stress as a major focus. In the MIDUS, the questions about discrimination were included as one of several small special topic sections of questions. As a result, we know such things as the number of people who believe that they experienced job loss due to discrimination or failed to obtain a bank loan because of discrimination, but we do not know how many additional people lost a job or failed to get a bank loan for reasons that they do not believe involved discrimination. Thus, in this report, we are unable to separate the effects of stressful events from the effects of the secondary stresses due to perceived discrimination.

A second limitation of our study is that reports about exposure to discrimination are more likely than reports about many other types of stress to be influenced by perceptions. This is due to the notion that discrimination

implies not only the occurrence of an objective experience but also an attribution about the reason for that experience. As described below, although some of the behavioral indicators (e.g., exposure to racial slurs) are more difficult to interpret in alternative ways than others (e.g., failure to get a job), most of the behaviors included in our questions about discrimination have enough of a subjective component to warrant referring to our investigation as a study of "perceived" discrimination. As a result, explanations for differential exposure need to consider the possibility of a greater propensity among some people than others to interpret stressful experiences as due to discrimination. A differential propensity of this sort could also lead to bias in estimating the impact of discrimination on mental health. This possibility means that caution is required in interpreting the results.

METHOD

Sample

The MIDUS survey is a national telephone-mail survey carried out in 1995–1996 under the auspices of the John D. and Catherine T. MacArthur Foundation Network on Successful Midlife Development. The sample of 3,032 respondents was recruited from a random digit dial sampling frame of the coterminous United States. Eligibility was restricted to people in the age range 25 to 74. Men and older respondents were oversampled. Only one respondent was selected from each eligible household. The survey was carried out in two phases. The first, a telephone interview, was completed in an average of thirty minutes. The second, a self-administered mail questionnaire, estimated to take an average of two hours. The phase-one response rate was 70.0 percent and the conditional phase-two response rate was 86.8 percent, with an overall response rate of 60.8 percent.

A four-stage weighting scheme was used to adjust the data for differences between the sample and the population. The first stage used tract-level data from the 1990 Census linked to the telephone central office codes of all sample households to estimate a propensity score weighting equation (Rosenbaum and Rubin 1983) for obtaining a Part I interview. The second stage was weighted for differences in within-household probability of selection due to variation in number of eligible respondents across households. The third stage used the Part I data to estimate a propensity score weighting equation for obtaining the Part II self-report questionnaire data. And, the fourth stage compared the multivariate distribution of the sample using the first three weights to Census population data and created a post-stratification weight to adjust for differences. A more detailed description of the weighting analysis is available on the MIDUS web page (see acknowledgements for URL). All results reported in this paper are based on these weighted data, and the high rate of nonresponse should lead to caution in extrapolating results to the total population in the age range of the sample.

Measures

As noted above, the MIDUS discrimination questions were designed to assess perceived discrimination of any type rather than only on the basis of gender, race-ethnicity, or social class. To this end, the lifetime perceived discrimination questions, which were collected in the mail questionnaire, were phrased in the following manner: "How many times in your life have you been discriminated against in each of the following ways because of such things as your race, ethnicity, gender, age, religion, physical appearance, sexual orientation, or other characteristics? (If the experience happened to you, but for some reason other than discrimination, enter 0)."

This question was followed with a series of eleven yes–no questions to assess lifetime exposure to major forms of discrimination (see Table 1) in such domains as job promotion, dealing with financial institutions, and housing. A separate set of nine questions was then asked about frequency of exposure to more chronic daily discrimination ("How often on a day-to-day basis do you experience each of the following types of discrimination?"), such as being treated with less courtesy than others or being called names (see Table 2). The response options for recording how often this latter group of experiences occurred were (1) often, (2) sometimes, (3) rarely, and (4) never.

The perceived discrimination questions were developed by one of the authors for use in a study of racial discrimination in Detroit

(Williams et al. 1997). The questions were based largely on the results of previous qualitative studies of discrimination (Essed 1991; Feagin 1991). As previously noted, perception can play an important part in some of the experiences included in the questions, as when a person who is not hired for a job interprets this as due to discrimination. This ambiguity is why we refer to the measures as measures of "perceived" discrimination.

It is noteworthy that the two types of discrimination measures assessed here differ in more ways than that one involves "major" lifetime events and the other "minor" day-to-day experiences. The former involve lifetime experiences that may have occurred many years ago and that, for the most part, involve major interference with advancing socioeconomic position (e.g., not hired, denied a bank loan, fired, or denied scholarship). The latter involve recent experiences that, for the most part, involve character assaults (e.g., treated with less courtesy or respect than others, treated as if inferior or dishonest) that may or may not lead to an interference with advancing one's socioeconomic position. We have no way of distinguishing the relative effects of these embedded dimensions of the experiences.

In the MIDUS, two approaches were used to assess mental health problems. The first, which was administered in the mail questionnaire, was the conventional approach of measuring frequency of nonspecific psychological distress in the month before the interview. The six-item measure we used consists of a series of questions about how often during the past 30 days the respondent felt nervous, restless or fidgety, hopeless, that everything was an effort, worthless, and so sad nothing could cheer him or her up. Response categories were (1) all of the time, (2) most of the time, (3) some of the time, (4) rarely, and (5) never. Exploratory principal axis factor analysis found only one meaningful dimension among these responses, with factor loadings ranging between .71 and .84 and an eigenvalue of 3.7. The eigenvalue of the second unrotated principal factor was 0.8. A scale was constructed by summing the values of the individual items, obtaining the mean score for each individual item, and then standardizing the mean score. Cronbach's alpha of this scale is .87.

The second approach to assess mental health problems in the MIDUS was to assess the presence of clinically significant emotional disorders in the year prior to the interview. This approach was used in the telephone interview. Two such disorders are considered here, Major Depression and Generalized Anxiety Disorder. Both disorders are based on the definitions and criteria specified in the third edition-revised of the American Psychiatric Association's (APA) *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III-R; 1987). A diagnosis of Major Depression requires a period of at least two weeks of either depressed mood or anhedonia most of the day, nearly every day, and a series of at least four other associated symptoms typically found to accompany depression, including problems with eating, sleeping, energy, concentration, feelings of self-worth, and suicidal thoughts or actions. A diagnosis of Generalized Anxiety Disorder requires a period of at least six months of excessive or unrealistic worry about a variety of life situations. The worry has to be uncontrollable; that is, the person experiencing the worry has to be unable to put it out of mind even when he or she tries. The worry also has to lead to a variety of psychophysiological reactions, such as trembling, nausea, or difficulties with sleeping. Major Depression and Generalized Anxiety Disorder were operationalized in screening versions of the World Health Organization's (WHO) "Composite International Diagnostic Interview," Version 1.0 (CIDI; WHO 1990; Kessler et al. 1998). WHO Field Trials (Wittchen 1994) and other methodological studies (Blazer et al. 1994; Wittchen et al. 1994) have documented good test-retest reliability and clinical validity of these CIDI diagnoses.

RESULTS

The Prevalences of Lifetime and Day-To-Day Perceived Discrimination

The first column of Table 1 presents lifetime prevalence estimates for the eleven lifetime perceived major discriminatory experiences assessed in the MIDUS survey. Prevalences range from a high of 16.0 percent for not being hired for a job because of discrimination to a low of 2.0 percent for being forced to leave a neighborhood because of discrimination. A full one-third of respondents (33.5%) reported the occurrence of at least one of these eleven experiences in their lifetime.

TABLE 1. Lifetime Prevalences of Perceived Major Discrimination in the Total Sample and Subsamples

			Age						Gender				Race/Ethnicity					
	Total Sample		25–44		45–64		65+		Male		Female		Non-Hispanic White		Non-Hispanic Black		Other	
	percent	(se)	percent	(se)	percent	(se)	percent	(se)	percent	(se)	percent	(se)	percent	(se)	percent	(se)	percent	(se)
Not hired for a job	16.0	(0.7)	18.2[a]	(1.0)	15.9[a]	(1.0)	5.9	(1.3)	16.6	(1.0)	15.5	(0.9)	14.8[d,e]	(0.7)	24.4	(3.0)	21.1	(3.2)
Not given a promotion	12.7	(0.6)	13.8[a]	(0.9)	13.6[a]	(0.9)	4.8	(1.2)	12.0	(0.8)	13.2	(0.9)	10.6[d]	(0.6)	27.8[e]	(3.2)	15.5	(2.9)
Denied/received inferior other service (e.g. plumber, mechanic)	9.0	(0.5)	11.3[a,b]	(0.9)	7.7[a]	(0.7)	1.7	(0.7)	5.6[c]	(0.6)	11.5	(0.8)	8.0[d,e]	(0.5)	15.2	(2.5)	13.9	(2.7)
Discouraged by teacher from seeking higher education	8.2	(0.5)	9.5[a]	(0.8)	8.1[a]	(0.7)	2.4	(0.8)	5.9[c]	(0.6)	1.0	(0.8)	6.9[d,e]	(0.5)	14.0	(2.5)	18.3	(3.1)
Denied a bank loan	6.6	(0.5)	6.8[a]	(0.7)	7.5[a]	(0.7)	3.3	(1.0)	7.8[c]	(0.7)	5.8	(0.6)	4.9[d]	(0.4)	19.8[e]	(2.8)	7.5	(2.1)
Hassled by police	6.4	(0.4)	8.8[a,b]	(0.8)	4.4[a]	(0.6)	0.7	(0.4)	11.0[c]	(0.8)	2.8	(0.4)	4.2[d,e]	(0.4)	19.3	(2.8)	15.7	(2.9)
Fired from a job	5.6	(0.4)	6.6[a]	(0.7)	4.8[a]	(0.6)	2.7	(0.9)	5.8	(0.6)	5.4	(0.6)	5.0[d]	(0.4)	10.5	(2.2)	4.8	(1.7)
Prevented from renting/buying home	3.9	(0.4)	4.3[a]	(0.6)	4.4[a]	(0.6)	0.4	(0.4)	4.5	(0.5)	3.4	(0.5)	2.0[d,e]	(0.3)	15.7	(2.6)	9.6	(2.3)
Denied a scholarship	3.3	(0.3)	4.4[a,b]	(0.6)	2.5[a]	(0.4)	0.4	(0.3)	3.5	(0.5)	3.1	(0.4)	3.0[e]	(0.3)	4.3	(1.4)	7.5	(2.1)
Denied/received inferior medical care	3.2	(0.3)	3.8[a]	(0.5)	3.0[a]	(0.5)	1.4	(0.6)	3.2	(0.5)	3.2	(0.4)	2.5[d]	(0.3)	6.8	(1.8)	6.2	(1.9)
Forced to leave a neighborhood	2.0	(0.3)	2.3	(0.4)	1.7	(0.4)	1.3	(0.6)	2.0	(0.4)	2.0	(0.4)	1.9	(0.3)	1.7	(0.9)	3.9	(1.5)
Any of the above	33.5	(0.9)	39.2[a,b]	(1.3)	31.1[a]	(1.3)	14.3	(1.9)	32.3	(1.2)	34.3	(1.2)	30.9[d,e]	(0.9)	48.9	(3.5)	50.2	(4.0)
n	3,032		1,633		1,041		358		1,318		1,714		2,485		339		141	

[a] Significantly different from the 65+ age subsample at the .05 level, two–tailed z test.
[b] Significantly different from the 45–64 age subsample at the .05 level, two–tailed z test.
[c] Significantly different from the female subsample at the .05 level, two–tailed z test.
[d] Significantly different from the non–Hispanic black subsample at the .05 level, two–tailed z test.
[e] Significantly different from the other race/ethnicity subsample at the .05 level, two–tailed z test.

The remainder of Table 1 presents subsample distributions of these same experiences separately by age, gender, and race/ethnicity. The age gradients are consistently negative for each of the experiences, with respondents in the age range 25–44 reporting the highest prevalences and those in the age range 65+ reporting the lowest. In comparison, there is no overall gender difference in the reported prevalence of at least one of these experiences, and only a few of the individual experiences are reported significantly more often by men than women (discouraged by a teacher, denied a bank loan, hassled by the police) or women than men (denied/received inferior service). Finally, the results regarding race/ethnic differences show that non-Hispanic whites consistently report much lower prevalences than non-Hispanic blacks or others.

We computed an 11 x 11 tetrachoric correlation matrix among the items in Table 1 in an effort to search for underlying structure among the items. All 55 correlations were greater than zero. However, most of the correlations were fairly modest in magnitude, with only two greater than .30: a .33 correlation between not being promoted and being denied a bank loan and a .43 correlation between not being hired for a job and not being promoted. Principal axis factor analysis of the matrix yielded little evidence of underlying structure, with an eigenvalue of 3.0 for the first factor, 1.1 for the second factor, and a condition number of 2.3. No meaningful differences in the structure of these intercorrelations was found across subsamples.

Table 2 presents frequency distributions for the nine types of day-to-day perceived discrimination assessed in the survey. Frequencies range from a high of 48.2 percent for being treated as if one was inferior (3.5% often, 13.6% sometimes, and 31.1% rarely) to a low of 23.5 percent for being threatened or harassed (0.7% often, 3.0% sometimes, and 19.8% rarely). A majority of respondents (60.9%) reported experiencing at least one of the nine types of discrimination on a day-to-day basis (6.5% often, 24.1% sometimes, 30.3% rarely).

Subsample distributions of experiencing at least one type of day-to-day perceived discrimination are reported in Table 3. The age gradient is negative, with respondents in the age range 25–44 most likely and those in the age range 65+ least likely to report experiencing day-to-day discrimination. Men are more likely than women to report that they experience day-to-day discrimination "often," while women are more likely than men to report experiencing it "sometimes." There are no meaningful gender differences in the proportions reporting experiencing day-to-day discrimination either "rarely" or "never." The results regarding race/ethnic differences show that non-Hispanic whites are much less likely than non-Hispanic blacks or others to experience perceived day-to-day discrimination. Perhaps the most striking results are that 44.4 percent of non-Hispanic whites report that they "never" experience day-to-day discrimination compared to only 8.8 percent of non-Hispanic blacks and 19.5 percent of others. Only 3.4 percent of non-Hispanic whites report experiencing day-to-day discrimination "often" compared to 24.8 percent of non-Hispanic blacks and 17.4 percent of others.

Principal axis factor analysis of the 9 x 9 matrix of Pearson correlations among the items in Tables 2 and 3 found a strong first factor, with an eigenvalue of 5.8 and factor load-

TABLE 2. Distributions of Specific Types of Day-to-Day Perceived Discrimination in the Total Sample

	Often		Sometimes		Rarely		Never	
	percent	(se)	percent	(se)	percent	(se)	percent	(se)
People act as if you are inferior	3.5	(0.3)	13.6	(0.6)	31.1	(0.9)	51.8	(0.9)
People act as if you are not smart	2.9	(0.3)	11.4	(0.6)	29.1	(0.8)	56.6	(0.9)
People act as if they are afraid of you	2.3	(0.3)	8.9	(0.5)	20.9	(0.8)	67.9	(0.9)
Treated with less courtesy than others	1.9	(0.3)	12.2	(0.6)	32.8	(0.9)	53.1	(0.9)
Treated with less respect than others	1.6	(0.2)	12.7	(0.6)	31.6	(0.9)	54.1	(0.9)
Receive poor service in stores/restaurants	1.4	(0.2)	9.1	(0.5)	29.0	(0.8)	60.4	(0.9)
People act as if you are dishonest	1.4	(0.2)	6.2	(0.4)	20.5	(0.7)	71.9	(0.8)
You are called names or insulted	1.2	(0.2)	5.2	(0.4)	22.0	(0.8)	71.6	(0.8)
You are threatened or harassed	0.7	(0.2)	3.0	(0.3)	19.8	(0.7)	76.5	(0.8)
Any of the above[a]	6.5	(0.5)	24.1	(0.8)	30.3	(0.8)	39.1	(0.9)

[a] Each respondent is rated at the highest value reported on any of the individual questions.

TABLE 3. Subsample Distributions on the Summary Measure of Any Day-to-Day Perceived Discrimination[a]

	Often		Sometimes		Rarely		Never		n
	percent	(se)	percent	(se)	percent	(se)	percent	(se)	
Age									
25–44	8.2[b,c]	(0.3)	27.6[b,c]	(1.1)	31.7[c]	(1.2)	32.5[b,c]	(1.2)	1,633
45–64	4.2[c]	(0.4)	21.7[c]	(1.0)	30.3[c]	(1.2)	43.7[c]	(1.3)	1,041
65+	5.6[b]	(1.1)	14.2[b]	(1.7)	23.4[b]	(2.1)	56.8[b]	(2.5)	358
Gender									
Male	7.5[d]	(0.4)	22.1[d]	(1.0)	30.3	(1.1)	40.1	(1.2)	1,318
Female	5.8	(0.3)	25.6	(1.0)	30.3	(1.1)	38.3	(1.1)	1,714
Race/Ethnicity									
Non-Hispanic white	3.4[e,f]	(0.2)	20.3[e,f]	(0.7)	31.9[e,f]	(0.8)	44.4[e,f]	(0.9)	2,485
Non-Hispanic black	24.8[f]	(1.1)	46.5[f]	(3.4)	19.9[f]	(2.7)	8.8[f]	(2.0)	339
Other	17.4[e]	(1.0)	37.2[e]	(3.4)	26.0[e]	(3.1)	19.5[e]	(2.8)	141
Total sample	6.5	(0.5)	24.1	(0.8)	30.3	(0.8)	39.1	(0.9)	3,032

[a] Each respondent is rated at the highest value reported on any of the individual questions about day-to-day discrimination.
[b] Significantly different from the 45–64 age subsample at the .05 level, two-tailed test.
[c] Significantly different from the 65+ age subsample at the .05 level, two-tailed test.
[d] Significantly different from the female subsample at the .05 level, two-tailed test.
[e] Significantly different from the non-Hispanic black subsample at the .05 level, two-tailed test.
[f] Significantly different from the "other" race/ethnicity subsample at the .05 level, two-tailed test.

ings that ranged between .71 and .86. We could find no evidence of a meaningful second factor using either orthogonal or oblique rotations. The eigenvalue of the second unrotated principal factor was 0.9. Subsample results are very similar to those in the total sample. Based on these results, we constructed a continuous scale of frequency of perceived day-to-day discrimination by summing the standardized values of the individual items, obtaining the mean score for each individual, and then restandardizing the mean score. Cronbach's alpha of this scale is .93.

The Pearson correlation between number of reported lifetime perceived major discrimination experiences and frequency of day-to-day perceived discrimination is statistically significant ($r = .44$, $p < .001$). However, this correlation is sufficiently weak that the separate effects of the two types of perceived discrimination can be examined in multivariate analysis.

Reasons for Perceived Discrimination

The first column of Table 4 presents the distribution of the reasons for perceived discrimination reported by the respondents with lifetime or day-to-day perceived discrimination.[1] The distribution sums to more than 100 percent because a substantial proportion of these respondents (32.5% of those who reported discrimination) reported more than one reason (e.g., discrimination because of being a poor, black, woman). The four most common reasons for perceived discrimination are race-ethnicity (37.1%), gender (32.9%), various aspects of appearance (predominantly weight, 27.5%), and age (23.9%). The other coded reasons for discrimination (e.g., religion, socioeconomic status, sexual orientation, physical/mental disability) were much less common (3.6–7.3%).

The remainder of the table presents the same distributions for subsamples defined on the basis of age, gender, and race/ethnicity. The distributions for respondents in the age ranges 25–44 and 45–64 are similar to the total sample distribution, while gender is less likely to be reported as the reason for discrimination by respondents in the age range 65+ than at younger ages. Gender is reported as the reason for discrimination by a higher proportion of women (47.9%) than men (11.4%), while race/ethnicity is reported by a higher proportion of men (47.4%) than women (28.5%). Race/ethnicity is a much less commonly reported reason for discrimination and gender a more commonly reported reason among non-Hispanic whites than the remainder of the sample. The vast majority of non-Hispanic blacks (89.7%) and respondents in the other race-ethnicity category (76.6%) report that race/ethnicity is a reason for their discrimina-

TABLE 4. Reasons for Perceived Discrimination in the Total Sample and Subsamples[a]

			Age				Gender		Race/Ethnicity					
	Total Sample		25–44		45–64		65+		Male		Female		Non-Hispanic White		Non-Hispanic Black		Other	
	percent[b]	(se)	percent[b]	(se)	percent[b]	(se)	percent[b]	(se)	percent[b]	(se)	percent[b]	(se)	percent[b]	(se)	percent[b]	(se)	percent[b]	(se)
Race/Ethnicity	37.1	(1.3)	37.5	(1.7)	34.2	(1.9)	46.2	(5.0)	47.4	(1.8)	28.5	(1.5)	21.1	(1.2)	89.7	(2.4)	76.6	(3.6)
Gender	32.9	(1.3)	34.3	(1.6)	33.8	(1.9)	14.7	(3.5)	11.4	(1.2)	47.9	(1.7)	39.2	(1.4)	13.7	(2.7)	17.5	(3.2)
Appearance	27.5	(1.2)	30.2	(1.6)	23.5	(1.7)	19.6	(4.0)	28.5	(1.7)	26.9	(1.5)	28.9	(1.3)	23.4	(3.3)	22.9	(3.5)
Age	23.9	(1.2)	20.3	(1.4)	30.0	(1.8)	30.2	(4.6)	24.7	(1.6)	23.3	(1.4)	25.7	(1.2)	16.9	(2.9)	16.8	(3.1)
Religion	7.3	(0.7)	6.1	(0.8)	8.2	(1.1)	14.9	(3.6)	7.4	(1.0)	7.1	(0.9)	7.6	(0.7)	5.1	(1.7)	8.1	(2.3)
Socioeconomic status[c]	4.9	(0.6)	4.5	(0.7)	5.8	(0.9)	4.8	(2.1)	6.1	(0.9)	4.1	(0.7)	6.5	(0.7)	0.0	(0.0)	1.4	(1.0)
Sexual orientation	4.2	(0.6)	5.1	(0.7)	3.2	(0.7)	0.4	(0.7)	3.2	(0.7)	4.9	(0.7)	4.9	(0.6)	3.0	(1.3)	0.0	(0.0)
Physical/mental disability	3.6	(0.5)	3.0	(0.6)	4.6	(0.8)	4.7	(2.1)	3.6	(0.7)	3.5	(0.6)	4.0	(0.6)	2.0	(1.1)	2.5	(1.3)
Other reason	5.5	(0.6)	5.3	(0.8)	6.1	(1.0)	5.7	(2.3)	4.2	(0.7)	6.5	(0.8)	6.3	(0.7)	26.5	(1.3)	2.2	(1.2)
n	3,032		1,633		1,041		358		1,318		1,714		2,485		339		141	

[a] These columns do not add up to 100 percent because some respondents gave more than one reason. The mean and standard deviation for number of reported reasons for any discrimination are 1.5 and 0.8, respectively.

[b] These percentages are based on respondents who reported any experience with lifetime or day-to-day discrimination.

[c] Socioeconomic status included respondents who reported that the discrimination was due to their financial, occupational, or educational status.

tion compared to a much smaller proportion of non-Hispanic whites (21.1%).

Associations of Perceived Discrimination with Mental Health

We used multiple regression analysis to study the associations of perceived discrimination with Major Depression (logistic regression), Generalized Anxiety Disorder (logistic regression), and psychological distress (linear regression). All models controlled for demographic variables that could be exogenous predictors of both perceived discrimination and mental health problems (age, gender, race/ethnicity, education, marital status, family income). We began by examining the eleven measures of major lifetime perceived discrimination. As a set, these measures significantly predicted nonspecific distress ($F_{11,2993} = 7.2$, $p < .001$) and Major Depression ($\chi^2_{11} = 41.4$, $p < .001$), but did not predict Generalized Anxiety Disorder ($\chi^2_{11} = 5.7$, $p = .893$). Disaggregation showed that the significant associations with distress and Major Depression were due to two significant predictors of distress (being fired from a job and not being hired for a job) and three predictors of Major Depression (not being hired for a job, being hassled by police, and being denied a bank loan). The joint effects of the multiple significant predictors of distress and Major Depression were found to be additive and equivalent (i.e., to have statistically indistinguishable slopes), leading to the creation of separate weighted additive scale of the significant predictors for each of these two outcomes.[2]

We then estimated parallel models to study the associations of the nine-item scale of day-to-day discrimination with the mental health measures. We discretized the discrimination scale into six categories for purposes of this analysis in order to capture possible nonlinearities. The lowest category was the 39.1 percent of respondents who reported never experiencing any day-to-day discrimination, while five categories of roughly equal size (10–12% per category) were created to order the remaining respondents by frequency of occurrence. Only the highest of these categories was found to be statistically significant in predicting Major Depression and Generalized Anxiety Disorder. However, there was a monotonic relationship across the full range of categories in predicting psychological distress. We found that this relationship could be adequately described with a linear regression of distress on the standardized scale score of the predictor.[3]

The joint effects of lifetime major discrimination and day-to-day discrimination were found to be additive in predicting both Major Depression and nonspecific psychological distress.[4] We report the estimated effects in these additive models in Table 5. As shown, both lifetime and day-to-day perceived discrimina-

TABLE 5. Lifetime and Day-to-Day Perceived Discrimination as Predictors of Mental Health[a]

	Depression		Generalized Anxiety		Distress	
	OR[b]	(95 percent CI)[c]	OR[b]	(95 percent CI)[c]	b	(se)
With no controls						
Lifetime[d]	1.4*	(1.2–1.6)	—	(—)	.52*	(.05)
Day–to–day[e]	1.8*	(1.3–2.4)	2.6*	(1.6–4.3)	.20*	(.02)
With ascribed controls[f]						
Lifetime[d]	1.5*	(1.4–1.7)	—	(—)	.53*	(.05)
Day–to–day[e]	2.3*	(1.6–3.2)	3.4*	(2.0–6.0)	.23*	(.02)
With achieved and ascribed controls[g]						
Lifetime[d]	1.5*	(1.3–1.7)	—	(—)	.52*	(.05)
Day–to–day[e]	2.1*	(1.5–2.9)	3.3*	(1.9–5.7)	.22*	(.02)

* $p < .05$ level, two-tailed test.

[a] Separate regressions were estimated for lifetime and day-to-day discrimination.

[b] "OR" stands for Odds Ratio.

[c] "95 percent CI" stands for 95 percent Confidence Interval.

[d] For depression, lifetime discrimination was coded as a weighted additive composite of the significant discrimination predictors. For non-specific distress, lifetime discrimination was coded as a dichotomy. See the text for details and a rationale.

[e] For depression and generalized anxiety, day-to-day discrimination was coded as a dichotomous variable of the top 10 percent of scores on the sum of the 9 day-to-day items. For nonspecific distress, day-to-day discrimination was coded as the standardized mean score on the 9 day-to-day items. See the text for details and a rationale.

[f] Ascribed controls include age, gender, and race/ethnicity.

[g] Achieved controls include education, marital status, and income.

tion are associated with significantly increased levels of distress (metric multiple regression coefficients of .52 for lifetime discrimination and .22 for day-to-day discrimination in a model with controls for the six social statuses), as well as with significantly elevated relative-odds of Major Depression and Generalized Anxiety Disorder (between 1.5 and 3.3). A comparison of the results "With no Controls," "With Ascribed Controls" and "With Achieved and Ascribed Controls" shows that controls for the statuses do not dramatically alter these patterns of association. However, as noted in the introduction, caution is needed in interpreting these associations in causal terms. Unmeasured common causes and differential propensity to interpret experienced stresses as due to discrimination could introduce bias into these relationships.

Variation in the Associations by Reason for Discrimination

We elaborated the models presented in Table 5 to include information about the reasons for discrimination. We found no statistically significant variation in Major Depression, Generalized Anxiety Disorder, or nonspecific distress based on the perceived reasons for discrimination. We also evaluated whether there were cumulative effects of discrimination depending on whether there was more than one reason for the discrimination, but no evidence was found for such effects in predicting any of the outcomes. This result means that the estimated emotional effects of perceived discrimination based on being, for example, a black woman are not greater than the effects of the same type of perceived discrimination based only on being black or only on being a woman.[5]

Disadvantaged Status and Perceived Discrimination

The results in Table 6 show that reported exposure to major lifetime discrimination is more common among the young than old in the age range of the sample, the never-married than the married, and nonwhites than whites. However, gender and income are not significantly related to major lifetime perceived discrimination. Furthermore, major lifetime perceived discrimination is more common among respondents with high than low levels of education.

The pattern of reported exposure to frequent day-to-day perceived discrimination is somewhat different. While there is no significant gender difference in major lifetime perceived discrimination, the results in Table 6 show that men are nearly twice as likely as women to report frequent day-to-day perceived discrimination. The age gradient in day-to-day perceived discrimination, while significant, is much more modest in magnitude than the relationship between age and major lifetime perceived discrimination. There is no relationship between education and frequent day-to-day perceived discrimination, while education is strongly related to major lifetime perceived discrimination. The opposite is true for income, which is significantly and inversely related to day-to-day perceived discrimination but not related to major lifetime perceived discrimination. Daily perceived discrimination is somewhat more strongly related to marital status than is major lifetime perceived discrimination. And, race/ethnicity is much more strongly related to day-to-day than lifetime perceived discrimination.

It is noteworthy that the results in Table 6 are based on two separate equations for each outcome. The first, reported in Part I of the table, includes only the three ascribed statuses (age, gender, and race/ethnicity). The second, reported in Part II, includes both the ascribed and achieved statuses (education, marital status, and income). We included the achieved statuses only in the second equation because associations of these statuses with perceived discrimination could be due to both the statuses influencing exposure and discrimination influencing the statuses (e.g., labor force discrimination leading to low income). We have no way of separating out the relative sizes of the reciprocal influences with these cross-sectional data even though the models were estimated based on the implicit assumption that the causal direction is exclusively from the statuses to discrimination. It is noteworthy that the results shown in Table 6 do not differ meaningfully from those based on models for the ascribed statuses controlling for the achieved statuses and for the achieved statuses not controlling for the ascribed statuses.

It is also noteworthy that analyses of multiplicative effects among the three ascribed

TABLE 6. Sociodemographic Predictors of Lifetime and Day-to-Day Perceived Discrimination

	Frequent Day-to-Day Discrimination[c]		Any Major Lifetime Discrimination[b]		Not Hired for Job		Denied Bank Loan		Hassled by Police		Fired From a Job	
	OR[c]	(95 percent CI)[d]	OR[c]	(95 percent CI)[d]	OR[c]	(95 percent CI)[d]	OR[c]	(95 percent CI)[d]	OR[c]	(95 percent CI)[d]	OR[c]	(95 percent CI)[d]
I. *Ascribed status*[e]												
Age												
25–44	1.7*	(1.0–2.9)	3.1*	(2.3–4.3)	3.1*	(1.9–4.9)	2.1*	(1.1–3.9)	10.5*	(2.0–38.3)	2.3*	(1.2–4.5)
45–64	1.2	(0.7–2.1)	2.4*	(1.7–3.3)	2.8*	(1.8–4.5)	2.3*	(1.2–4.4)	5.9*	(1.6–22.1)	1.8	(0.9–3.6)
65+	1.0	(—)	1.0	(—)	1.0	(—)	1.0	(—)	1.0	(—)	1.0	(—)
Gender												
Male	1.0	(—)	1.0	(—)	1.0	(—)	1.0	(—)	1.0	(—)	1.0	(—)
Female	0.6*	(0.4–0.8)	1.2	(1.0–1.3)	0.9	(0.7–1.1)	0.6*	(0.4–0.8)	0.2*	(0.1–0.2)	0.8	(0.6–1.1)
Race/Ethnicity												
Non-Hispanic white	1.0	(—)	1.0	(—)	1.0	(—)	1.0	(—)	1.0	(—)	1.0	(—)
Non-Hispanic black	12.8*	(9.5–17.1)	2.1*	(1.7–2.7)	1.8*	(1.4–2.4)	4.9*	(3.5–6.8)	6.9*	(4.7–10.0)	2.1*	(1.4–3.2)
Other	4.5*	(2.8–7.0)	2.0*	(1.4–2.8)	1.4	(0.9–2.1)	1.5	(0.8–2.9)	3.2*	(1.9–5.4)	0.8	(0.4–1.8)
II. *Achieved status*[f]												
Education												
0–11	1.2	(0.7–1.9)	0.4*	(0.3–0.6)	0.4*	(0.3–0.7)	1.0	(0.6–1.8)	0.4*	(0.2–2.3)	0.3*	(0.2–0.7)
12	1.2	(0.9–1.8)	0.5*	(0.4–0.6)	0.6*	(0.5–0.8)	1.0	(0.6–1.5)	0.6*	(0.4–1.0)	0.6*	(0.4–0.9)
13–15	1.2	(0.8–1.7)	0.8*	(0.6–1.0)	1.0	(0.8–1.3)	1.4	(0.9–2.2)	1.2	(0.8–1.8)	0.9	(0.6–1.3)
16+	1.0	(—)	1.0	(—)	1.0	(—)	1.0	(—)	1.0	(—)	1.0	(—)
Marital status												
Never married	1.5*	(1.1–2.3)	1.3*	(1.0–1.7)	1.1	(0.8–1.5)	0.9	(0.6–1.4)	1.5	(1.0–2.3)	0.9	(0.6–1.3)
Previously married	1.5*	(1.0–2.1)	1.2	(0.9–1.4)	1.2	(0.9–1.5)	1.4	(0.9–2.0)	1.0	(0.6–1.6)	0.9	(0.6–1.5)
Married/cohabiting	1.0	(—)	1.0	(—)	1.0	(—)	1.0	(—)	1.0	(—)	1.0	(—)
Income												
0–19,000	1.8*	(1.1–3.0)	1.0	(0.7–1.3)	1.4	(1.0–1.9)	1.0	(0.6–1.7)	1.7*	(1.0–2.9)	2.4*	(1.4–4.1)
20–34,000	1.6	(1.0–2.4)	1.1	(0.8–1.4)	1.2	(0.9–1.6)	1.1	(0.7–1.7)	1.5	(0.9–2.4)	1.8*	(1.1–2.9)
35–69,000	1.2	(0.8–1.9)	0.8	(0.7–1.0)	0.9	(0.6–1.1)	0.6*	(0.4–0.9)	0.8	(0.5–1.3)	1.0	(0.6–1.5)
70,000+	1.0	(—)	1.0	(—)	1.0	(—)	1.0	(—)	1.0	(—)	1.0	(—)

* $p < .05$ level, two-tailed test.

[a] Frequent day-to-day discrimination was defined as the top 10 percent of scores on the sum of the 9 day-to-day items.

[b] This outcome is a dichotomy for respondents who reported experiencing at least one of the 11 lifetime major discrimination events (coded 1) versus all others (coded 0).

[c] "OR" stands for Odds Ratio.

[d] "95 percent CI" stands for 95 percent Confidence Interval.

[e] The coefficients in Part I are based on a series of multivariate equations that included only the three ascribed statuses as predictors.

[f] The coefficients in Part II are based on a series of multivariate equations that included all six statuses as predictors.

statuses found a number of significant (.05 level, two-sided tests) two-way interactions. Two of these were between age and gender (for any major discrimination and being fired from a job). In both of these cases, the negative age gradient in exposure was found to be confined to women. Four significant interactions were found between gender and race-ethnicity (frequent day-to-day discrimination, any major lifetime discrimination, hassled by police, and denied a bank loan). In all of these cases, the gender difference in exposure was found to be much greater among non-Hispanic whites than respondents in other race/ethnic groups. One significant interaction was found between age and race/ethnicity (frequent day-to-day discrimination). The negative age gradient in this case was confined to non-Hispanic whites. The data were too sparse to estimate three-way interactions among the ascribed statuses. We made no attempt to estimate interactions among the achieved statuses based on concerns about interpretational confusion due to possible reciprocal causation.

Variation in the Effects of Perceived Discrimination

Interaction models were estimated to determine whether the associations between perceived discrimination and mental health vary systematically across the six social statuses. Global tests of significance were used in making these evaluations in order to avoid capitalizing on chance findings of individually significant coefficients.[6] As shown in Table 7, 16 of the 30 tests are significant at the .05 level. This is a much greater proportion than we would expect by chance. All six of the social statuses are involved in these significant variations: two each for age, gender, and marital status; three for race/ethnicity and education; and four for income. Twelve of the 16 are found in equations to predict distress, while only four are in equations to predict either Major Depression or Generalized Anxiety Disorder. The failure to find consistent evidence for interactions in predicting Major Depression or Generalized Anxiety Disorder presumably reflects the fact that linear interactions are absorbed into the main effects in logistic models of the sort used to predict these dichotomous outcomes.

Inspection of the within-subsample regression coefficients shows that there is not a great deal of consistency in some of the specifications. For example, the slope of the association between discrimination and mental health is larger for non-Hispanic whites than respondents in other race/ethnic subsamples for one of the three significant interactions involving race/ethnicity but not the others. In a similar way, there is no consistency across significant equations in the pattern of slopes associated with age, gender, marital status, or income. In comparison, the pattern for education is much more consistent in showing that the association between discrimination and mental health is significantly stronger among respondents with low levels of educational attainment.

Social Status and Mental Health: The Effects of Discrimination

As in most previous general population surveys of mental health (e.g., Kessler et al. 1994; Robins and Regier 1991), the prevalences of Major Depression, Generalized Anxiety Disorder, and distress in the MIDUS survey are significantly higher among women than men, whites than nonwhites, and inversely related to both income and education. In comparison, marital status and age are not significantly related to these outcomes after controlling for the other dimensions of disadvantaged social status. Therefore, we focused our attention on the first four social statuses in evaluating the extent to which differential exposure and differential emotional reactivity to discrimination help account for the significant associations of these statuses with mental health.

The method of demographic rate decomposition was used to make this evaluation. As described in more detail elsewhere (Iams and Thornton 1975), this method begins by estimating equations for the effects of discrimination on mental health in subsamples of each social status variable and then systematically compares the coefficients across subgroups to estimate how the mean values of the outcomes would change if either exposure to discrimination were equalized, emotional reactivity (i.e., the values of the slopes of mental health on discrimination) were equalized, or both exposure and emotional reactivity were equalized. The results allow us to estimate the extent to which differential exposure, differ-

TABLE 7. Interactions of Sociodemographics with Lifetime and Day-to-Day Perceived Discrimination in Predicting Mental Health Outcomes

	Major Lifetime Discrimination						Day-to-Day Discrimination								
	Depression[a]			Distress[b]			Depression[a]			Generalized Anxiety Disorder[a]			Distress[b]		
	OR	(95 percent CI)	χ^2	b	(se)	F	OR	(95 percent CI)	χ^2	OR	(95 percent CI)	χ^2	b	(se)	F
I. *Ascribed status*															
Age			0.5			20.7*			2.1			—			21.0*
25–44	—	—		.42*	(.08)		—	—		—	—		.13*	(.03)	
45–64	—	—		.34*	(.08)		—	—		—	—		.26*	(.03)	
65+	—	—		.05*	(.27)		—	—		—	—		.22*	(.07)	
Gender			2.2			22.7*			1.0			1.2			23.4*
Male	—	—		.22	(.07)		—	—		—	—		.12	(.03)	
Female	—	—		.51*	(.08)		—	—		—	—		.25*	(.03)	
Race/Ethnicity			7.1*			21.0*			4.9			.2			20.9*
Non-Hispanic white	1.3*	(1.1–1.6)		.44*	(.06)		—	—		—	—		.19*	(.02)	
Non-Hispanic black	N/C	(—)		.23	(.17)		—	—		—	—		.17*	(.06)	
Other	1.6	(.8–2.9)		.03	(.30)		—	—		—	—		.06*	(.09)	
II. *Achieved status*															
Education			9.4*			19.6*			2.3			7.0			19.7*
0–11	2.8*	(1.5–5.1)		.61*	(.25)		—	—		—	—		.26*	(.07)	
12	1.6*	(1.2–2.2)		.44*	(.11)		—	—		—	—		.14*	(.04)	
13–15	1.3*	(1.1–1.6)		.25*	(.09)		—	—		—	—		.21*	(.04)	
16+	1.0	(.7–1.4)		.35*	(.08)		—	—		—	—		.14*	(.03)	
Marital status			1.9			20.6*			.3			3.4			20.6*
Never married	—	—		.15	(.16)		—	—		—	—		.21*	(.06)	
Previously married	—	—		.45*	(.11)		—	—		—	—		.19*	(.04)	
Married/cohabiting	—	—		.42*	(.07)		—	—		—	—		.17*	(.03)	
Income			10.2*			19.6*			.2			9.8*			19.9*
0–19,000	2.0*	(1.5–2.8)		.36*	(.15)		—	—		N/C	(—)		.18*	(.06)	
20–34,000	1.6*	(1.3–2.0)		.52*	(.11)		—	—		N/C	(—)		.23*	(.04)	
35–69,000	1.2	(.8–1.6)		.34*	(.09)		—	—		5.6*	(2.1–15.2)		.13*	(.03)	
70,000+	1.2	(.8–1.6)		.30*	(.12)		—	—		N/C	(—)		.24*	(.05)	

* $p < .05$ level, two-tailed test.

[a] Separate logistic regression equations were estimated for interactions of lifetime and day-to-day discrimination with each sociodemographic variable, controlling for the main effects of the other sociodemographics. Global Significance tests for interactions are reported as chi-square values. Within subsamples, odds-ratios (OR's) and 95 percent Confidence Intervals (95% CI's) for the associations between discrimination and the outcome are reported in the body of the table for statuses with significant interactions.

[b] Separate multiple linear regression equations were estimated for interaction of lifetime and day-to-day discrimination with each sociodemographic variable, controlling for the main effects of the other sociodemographics. Global Significance tests for interactions are reported as F values. Within subsamples, unstandardized regression coefficients (b) and standard errors (se) for the associations between discrimination and the outcome are reported in the body of the table for statuses with significant interactions.

ential reactivity, and the interaction between differentials in exposure and reactivity to discrimination account for observed differences in mean levels of mental health across subsamples.

We report the results in Table 8. Each row of the table represents a separate dichotomous comparison between two subsamples. For example, the first row compares rates of Major Depression among men and women. As shown there, women have a significantly higher rate of Major Depression than men. However, the decomposition analysis shows that this is not due to women experiencing more discrimination than men. Indeed, the results suggest that there is a very small disadvantage for men relative to women in terms of exposure to the types of discrimination that lead to Major

TABLE 8. The Effects of Differential Exposure and Reactivity to Discrimination in Explaining the Associations Between Social Status and Mental Health Outcomes

					Decomposition Percentages[a]			
	OR[b] (95 percent CI)[c]		b	(se)	Exposure	Reactivity	Interaction	Residual
Female vs. male								
Major depression	1.8*	(1.4–2.3)	—	—	–1.3	0.0	0.0	101.3
Generalized anxiety	2.3*	(1.4–3.7)	—	—	5.9	0.0	0.0	94.1
Distress	—	—	.19*	(–.04)	3.3	11.5	5.2	80.0
Non-Hispanic black vs. non-Hispanic white								
Major depression	2.5*	(1.7–3.3)	—	—	–133.7	–9.1	–26.6	269.5
Generalized anxiety	2.0*	(.8–3.3)	—	—	—	—	—	—
Distress	—	—	–.13*	(.06)	–15,265.9	0.0	0.0	15,365.9
Ed 0–11 vs. 12								
Major depression	1.7*	(1.2–2.5)	—	—	–39.3	25.7	3.0	110.6
Generalized anxiety	3.3*	(1.7–4.9)	—	—	–48.6	0.0	0.0	148.6
Distress	—	—	.20*	(.06)	.7	–2.7	5.8	96.2
Ed 0–11 vs. 13–15								
Major depression	1.4*	(1.1–2.0)	—	—	–189.0	129.8	–51.1	210.3
Generalized anxiety	2.0*	(1.1–3.3)	—	—	–105.8	–33.2	–6.3	245.4
Distress	—	—	.26*	(.06)	–38.6	6.2	.1	132.4
Ed 0–11 vs. 16+								
Major depression	2.0*	(1.2–2.5)	—	—	–22.4	29.6	–6.2	99.0
Generalized anxiety	5.0*	(2.1–11.2)	—	—	–22.6	–7.7	–4.8	135.1
Distress	—	—	.35*	(.07)	1.0	–.5	2.9	96.6
Inc $0–19,000 vs. $20,000–34,000								
Major depression	1.2	(.6–2.1)	—	—	—	—	—	—
Generalized anxiety	1.0	(.5–1.8)	—	—	—	—	—	—
Distress	—	—	.19*	(.06)	19.1	0.0	0.0	80.9
Inc $0–19,000 vs. $35,000–69,000								
Major depression	1.2	(.9–1.6)	—	—	—	—	—	—
Generalized anxiety	1.1	(.6–2.1)	—	—	—	—	—	—
Distress	—	—	–.26*	(.05)	33.8	0.0	0.0	66.2
Inc $0–19,000 vs. $70,000+								
Major depression	1.3	(.8–1.7)	—	—	—	—	—	—
Generalized anxiety	.9	(.4–1.7)	—	—	—	—	—	—
Distress	—	—	–.25*	(.06)	40.8	0.0	0.0	59.2

* $p < .05$ level, two-tailed test.

[a] See the text for a description of the strategy used to generate the decomposition.

[b] "OR" stands for Odds Ratio.

[c] "95 percent CI" stands for 95 percent Confidence Interval.

Depression. Furthermore, the absence of any significant gender difference in the impact of discrimination on Major Depression (documented in Table 7) means that differential emotional reactivity to discrimination plays no part in the gender difference in Major Depression. Taken together, these results imply that the association between gender and Major Depression in the absence of discrimination (reflected in the residual column of the table) would be essentially the same as the observed association.

A quick inspection of all the entries in the residual column of Table 8 shows that a similar conclusion can be drawn for male-female differences in the other mental health outcomes as well as for differences associated with race/ethnicity and educational attainment. In each of these cases, the residual is either close to 100 percent of the observed difference or exceeds the observed difference. The latter cases uniformly involve negative exposure components, meaning that the social status group with the better mental health enjoys this advantage despite being exposed to more discrimination than the social status group with worse mental health. This implies that eradication of discrimination would lead to an increase in the mental health advantage of the advantaged group.

In comparison, the situation is somewhat different for the associations between income and mental health. As shown in the last three categories of Table 8, perceived discrimination appears to be important in explaining the significantly higher levels of psychological distress among low-income than higher income respondents. Differential exposure to discrimination is the important factor here rather than differential reactivity. The estimated residuals suggest that the mean differences in distress across the income range would be only between 59 percent and 81 percent as large in the absence of discrimination.

DISCUSSION

The results reported here do not support the hypothesis that initially motivated us to include an assessment of discrimination in the MIDUS survey—that differential exposure to discrimination plays an important part in explaining the associations between disadvantaged social status and mental health problems. The only previous evidence related to this hypothesis was the work of Krieger (1990), who found that racial discrimination helped explain the higher rate of hypertension found in his study among black women compared to white women. We failed to find a similar effect of discrimination in explaining the associations of race-ethnicity, gender, or education with mental health problems in the MIDUS data, although the associations of low income with these outcomes were partly explained by differential exposure to perceived discrimination.

It is not clear why our results differ from those of Krieger with respect to race-ethnic differences. One dramatic difference is that we found minorities to be in better mental health than non-Hispanic whites, while Krieger found higher rates of hypertension among blacks than whites. The fact that we focused on mental health rather than hypertension might be relevant. Another important difference between the two studies is that Krieger focused on racial discrimination, which does differ dramatically for blacks versus whites, while we examined discrimination of any kind. Furthermore, it is not clear why our finding that discrimination is important in explaining the poor mental health of people with low income differs from our failure to find such effects for the ascribed statuses or for education.

It is important to note that our failure to explain the associations between most disadvantaged statuses and mental health problems occurred despite the fact that perceived discrimination was found to be highly prevalent in the sample and the fact that reported exposure to perceived discrimination was found to be strongly related to mental health problems. There are two reasons for this failure. First, although reported exposure was generally higher among people in disadvantaged than advantaged subsamples, these associations were generally not strong. And, second, while there was some variation in the strength of the associations between discrimination and the mental health outcomes across subsamples defined on the basis of disadvantaged status, this variation was neither consistent nor strong.

Despite our failure to confirm the main hypothesis, the results reported here suggest that perceived discrimination might be an even more important factor in population mental

health than we had initially anticipated. Consistent with the claim that discrimination is an important feature of intergroup relations in the United States (Jackman 1994), our analyses revealed that fully one-third of respondents in the 25–74 age range have been exposed to at least one major experience that they interpret as due to discrimination and that over 60 percent experience day-to-day perceived discrimination. These findings take on added importance in light of the fact that we found strong associations between perceived discrimination and mental health problems. Caution is needed not to overinterpret this finding because, as we noted in the introduction, selective perception might play an important part in defining stressful experiences as due to discrimination. However, if the associations between perceived discrimination and mental health found in MIDUS are due to a causal effect of discrimination, then the conjunction of high prevalence and strong impact would mean that discrimination is among the most important of all the stressful experiences that have been implicated as causes of mental health problems.

The results reported here are also important in expanding our limited knowledge about the social distribution of discrimination. Prior research on racial discrimination among African Americans suggests that exposure to discrimination is inversely related to age and positively related to socioeconomic status (Sigelman and Welch 1991). We found similar patterns in our general population sample and also documented that nonwhites report much higher levels of perceived discrimination than whites. We also found some evidence of higher perceived discrimination among unmarried than married people. However, in contrast to some expectations in the literature (Gardener 1995), we did not find higher levels of perceived discrimination among women than men. Indeed, men reported higher levels of day-to-day perceived discrimination than women. One possible explanation for this surprising result is found in research that suggests that women are more likely than men to discount the discrimination they face and to deny being personally discriminated against (Crosby 1984). Future research should attempt to identify the extent to which denial might lead to an underestimate of exposure to discrimination among women as well as among other respondents.

A similar explanation might help account for the seemingly counterintuitive finding that lifetime perceived discrimination is significantly higher among younger than older respondents in the age range of the sample. It is conceivable that this is due to a cohort effect. Indeed, the results of the interaction analysis are consistent with this possibility in showing that the higher reported prevalences of some types of discrimination among younger respondents are confined to non-Hispanic white women. The fact that white women in the more recent MIDUS cohorts have much more experience in the labor force than women in earlier cohorts might mean that younger women really have been exposed to more job discrimination than older women. In addition, the dramatic inverse age gradient in being hassled by the police might reflect historical changes in policing practices, possibly associated with increasing urbanization of the population and the rise in youth-oriented venues such as arcades and shopping malls.

However, the magnitude of the age gradient—more than a three-fold elevated odds among respondents in the age range 25–44 compared to those 65–74—is so great that an increase in the actual occurrence of discrimination as large as this over such a short period of historical time seems implausible. Based on this observation, we suspect that secular increases either in sensitivity to unfair treatment or in the propensity to define stress as due to discrimination are involved in some way in accounting for the strong inverse association of exposure with age. Of course, another possibility is that there might be an increase in recall failure with age.

Still, another seemingly counterintuitive finding is that reported discrimination is positively related to education. This might reflect a greater tendency for well-educated people to define failure as due to discrimination rather than personal inadequacies. However, it is also noteworthy that previous research has shown that well-educated blacks are, in fact, more likely than their less-educated counterparts to be confronted with discrimination (Sigelman and Welch 1991). The reason appears to be that higher education leads to greater interactions outside of the black community and this, in turn, is associated with greater exposure to discrimination.

Perhaps the most striking aspect of the associations between disadvantaged social status

and perceived discrimination is the one noted at the beginning of this section: they are generally not very strong. The highest relative-odds of exposure to major perceived lifetime discrimination is approximately 3:1 and associated with age. The relative-odds is closer to 2:1 for the race-ethnicity comparison. On a base of approximately one-third of the population reporting lifetime major discrimination, this means that a substantial proportion of people who are not thought to have disadvantaged social statuses think of themselves as experiencing major discrimination at some time in their life. This is true, for example, of nearly 30 percent of non-Hispanic whites and over 50 percent of people with a college education. These results suggest that discrimination, or at least the perception of discrimination, is a very common experience in the general population.

This finding would not be important if it was not for the fact that further analyses suggest that perceived discrimination may be consequential for mental health. Indeed, the associations of perceived discrimination with the mental health problem indicators included in MIDUS are comparable in magnitude to the associations of mental health with major stressor events found in previous research. For example, the slopes of between .2 and .5 found in the MIDUS data for the associations between perceived discrimination and nonspecific psychological distress are comparable to slopes ranging between .2 and .4 found in previous studies of the effects of major life events like death of a loved one, divorce, and job loss on similar outcome measures (e.g., McGonagle and Kessler 1990; Mitchell, Cronkite, and Moos 1983). The odds-ratios found in MIDUS linking lifetime major perceived discrimination to Major Depression and Generalized Anxiety Disorder are comparable in magnitude to the odds-ratios found in previous studies for the effects of lifetime traumatic life events such as sexual assault and combat exposure on the same outcomes (Kessler, Davis, and Kendler 1997).

Several other population-based epidemiological studies have found a positive association between self-reports of discrimination and psychological distress (Amaro et al. 1987; de Snyder 1987; Thompson 1996; Williams and Chung forthcoming; Williams et al. 1997). However, all these studies, with the exception of the recent study of Williams et al. (1997) carried out in Detroit, used a single-item measure to assess discrimination, making the results hard to interpret. The Williams et al. study is also the only one of which we are aware that examined both chronic and acute discrimination. The MIDUS results are consistent with those of Williams and his colleagues in finding that day-to-day discrimination is more strongly related to psychological distress than is lifetime major discrimination. However, given the cross-sectional nature of our analyses, we have no basis for inferring a temporal ordering of these associations. This is an intractable problem in that we cannot randomly assign people to exposure to discrimination.

At the same time, some limited evidence suggests that experiences of discrimination can lead to changes in psychological or physiological functioning. A number of laboratory-based studies, largely with African-American respondents, have done pre- and post-analyses of physiological and affective reactions to mental imagery and videotaped vignettes of discriminatory behavior. These studies have found that such exposure to racist provocation leads to increased cardiovascular and psychological reactivity (Anderson et al. 1989; Armstead et al. 1989; Jones et al. 1996; Morris-Prather et al. 1996; Sutherland and Harrell 1986). Other experiments have shown that subjects exposed to arbitrary discrimination in an experimental setting have higher levels of negative feelings than those who did not experience discrimination (Dion 1975; Dion and Earn 1975; Hannah 1974; Pak, Dion, and Dion 1991). Despite these suggestive results, clearly, there is a need for rigorous prospective studies with assessments of exposure to discrimination that would enhance our understanding of the temporal and causal relationships between experiences of discrimination and mental health functioning.

It is also important that future studies develop measures of discrimination than are independent of individual attributions and that they embed these measures of discrimination within broader assessments of stress exposure. This is especially important in light of the fact, as previously noted, that contextual rating studies of stress show that perceived discrimination is often an important secondary stress associated with major stressor events (Wethington et al. 1995). In other words, detailed analyses of discrimination in relation to more conventional measures of stressful events and difficulties

might well show that perceived discrimination helps explain the adverse mental health effects of events such as job loss, difficulties with the police, and other stressors that could be interpreted as caused by unfair treatment. It is also possible that future research along these lines will show that attributions of stressor events as due to discrimination are more a consequence than a cause of psychological distress.

In addition, it is important for future research to study specifiers of the effects of discrimination. We looked at the extent to which the health effects of discrimination vary depending on the reasons for the discrimination. The only previous evidence on this issue was from Krieger (1990), who found that although racial discrimination was related to hypertension for black women, gender discrimination was unrelated to high blood pressure for white women. However, we do not know the generalizability of this pattern. Our analyses documented that there was no variation in the mental health effects of discrimination depending on the perceived reason for unfair treatment, suggesting that it is the generic perception of unfairness, not the perceived reason for the discrimination, that is adversely linked to mental health.

We also examined the extent to which there are variations in the effects of discrimination for different subgroups of the population. We found that discrimination is more strongly related to the mental health of women than of men. Although we did not find racial differences in the strength of associations between chronic everyday discrimination and mental health, the associations between major discrimination and mental health were found to be stronger among blacks and low socioeconomic status respondents than whites and their higher socioeconomic status counterparts. This result raises the possibility that some socially disadvantaged groups are doubly disadvantaged in that they experience higher levels of discrimination and are more adversely affected than others by these experiences when they occur. More fine-grained and extensive investigations of substantive specifiers will be required in order to confirm this suggested causal order, to pinpoint the vulnerabilities involved in these putative effects, and to suggest interventions that might be useful in increasing resistance to these influences. Given the pervasiveness and possibly strong mental health effects of perceived discrimination, an understanding of ways to increase resistance is especially important.

Another important future agenda item is for contextual analysis of the sort developed by Brown and Harris (1978, 1989) to be used to decompose the effects of discrimination so that we can study the component substresses that account for its effect on mental health. We noted in our methods section that the measures of discrimination used here combine experiences that involve blocked opportunities (e.g., failure to get a job) with experiences that involve affronts (e.g., called names or insulted) and that we have no way of distinguishing the relative effects of these and other dimensions. The contextual rating approach attempts to carry out such a disaggregate by evaluating the implications of specific stressor experiences for such dimensions as finances, health-safety, self-esteem, and interference with future plans. Although the original approach to contextual analysis developed by Brown and Harris requires very labor-intensive qualitative interviews, recent methods have been developed to approximate the same ratings with largely structured methods (Wethington et al. 1995).

In carrying out a disaggregation of this type, it will be important that future research embed the analysis of attributions about discrimination in a larger understanding of the ways in which attribution processes about such dimensions as predictability, control, justice, and the motivations of powerful others influence adjustment to adversity. Intriguing work on the role of attribution in adjustment to stress has been done that has important implications for such future studies of discrimination. For example, Janoff-Bulman (1992) found that attributions of situational self-blame rather than characterologic self-blame or other-blame for adversity can lead to better emotional adjustment in situations where the impact of the adversity occurs by shattering worldviews and helping the victim regain a sense of personal control over future events. In comparison, Brandtstadter and Renner (1990) found that realistic appraisals of lack of control can be associated with better emotional adjustment in situations where structural barriers to goal attainment exist. An important task for future investigations will be to sort out the circumstances under which these different processes are at work and the ways in which attributions about discrimination are involved.

NOTES

1. A total of 1,940 respondents reported experiencing either at least one major lifetime discriminatory event or any day-to-day discrimination. However, 619 (32 percent) of those respondents did not give a reason for the discrimination extending beyond the person himself or herself (e.g., a report that people in my neighborhood discriminate against me because they don't like me as opposed to because I am black or poor or female). The percentages in the first column of Table 3 are based on the 1,321 respondents who provided a reason for the discrimination.
2. We consider this approach to characterizing the effects of major lifetime discrimination superior to an approach that simply sums the number of reported discriminatory experiences or uses factor analysis to create a scale of discrimination. The latter approach, based implicitly on a concept-indicator classical test theory model, assume that a latent variable of discrimination both accounts for the associations among the observed behaviors and explains the associations between the behaviors and mental health outcomes. We consider these implicit assumptions implausible and prefer a model of the sort used in our analysis, in which we allow for the possibility that some types of perceived discrimination are more distressing than others and that the most distressing types of perceived discrimination vary depending on whether we are predicting clinical depression, clinical anxiety, or nonspecific psychological distress.

   We established additivity by comparing the overall fit of two models for major depression. The first model included the main effects of all the predictors, while the second model included the main effects plus all logically possible interactions among the predictors. There was no significant improvement in the fit of the second model compared to the first in predicting major depression ($\chi^2_3 = 7.6$, $p = .055$). Having established additivity, equivalence was established by comparing the fit of a model that forced the slopes of all the predictors to be identical with the fit of a model that allowed the slopes of the different predictors to vary. There was no significant improvement in the fit of the second model compared to the first in predicting major depression ($\chi^2_5 = 10.5$, $p = .062$).
3. A number of analyses evaluating the nonlinear relationship between day-to-day discrimination and nonspecific distress failed to find a nonsignificant nonlinearity. For example, there was no significant improvement in the fit of the model when day-to-day discrimination squared was added to the linear model ($F_{1,2917} = 0.6$, $p = .439$).
4. We established additivity by evaluating the significance of the interaction between the two measures. This interaction was not significant in predicting either psychological distress ($F_{1,2916} = 1.3$, $p = .254$) or Major Depression ($\chi^2_1 = 0.7$, $p = .403$). Because lifetime discrimination did not significantly predict generalized anxiety disorder, the interaction analysis was not performed on this outcome.
5. We evaluated these interactions by focusing on the subsample of respondents who reported discrimination and adding dummy predictor variables that described reasons for discrimination to the predictors used in the Table 4 models. There were two significant dummy variables: physical appearance ($b = .22$, s.e. $= .07$, $p < .001$) and "other" reasons ($b = .18$, s.e. $= .07$, $p = .014$), excluding age, gender, and race-ethnicity. Note that the regression coefficients reported above are partially metric; that is, they describe the standardized mean difference in psychological distress between respondents who reported physical appearance or "other" reasons for discrimination versus those who did not report these as reasons.
6. For example, the interaction between lifetime discrimination and marital status was evaluated with a two degree of freedom test for the overall improvement in model fit associated with the interactions of lifetime discrimination with a three-category measure of marital status (currently married or cohabiting, never married, previously married). A similar two degree of freedom test was used to evaluate the significance of the interaction between day-to-day discrimination and marital status.

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