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Racial Discrimination and Health Among Asian Americans: Evidence, Assessment, and Directions for Future Research

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Research shows that racial discrimination is related to illness among diverse racial and ethnic populations. Studies of racial discrimination and health among Asian Americans, however, remain underdeveloped. In this paper, the authors review evidence on racial discrimination and health among Asian Americans, identify gaps in the literature, and provide suggestions for future research. They identified 62 empirical articles assessing the relation between discrimination and health among Asian Americans. The majority of articles focused on mental health problems, followed by physical and behavioral problems. Most studies find that discrimination was associated with poorer health, although the most consistent findings were for mental health problems. This review suggests that future studies should continue to investigate the following: 1) the measurement of discrimination among Asian Americans, whose experiences may be qualitatively different from those of other racial minority groups; 2) the heterogeneity among Asian Americans, including those factors that are particularly salient in this population, such as ethnic ancestry and immigration history; and 3) the health implications of discrimination at multiple ecologic levels, ranging from the individual level to the structural level.

Asian Americans; ethnic groups; health status disparities; minority health; population dynamics; prejudice; residence characteristics; stress, psychological

Abbreviations: GED, General Ethnic Discrimination; GSS, General Social Survey.

INTRODUCTION

Racial discrimination may influence the life circumstances of racial minorities through multiple pathways, such as by determining one's residence, economic opportunities, stress, and experiences with health care (1–5). Accordingly, racial discrimination has gained attention as a potential explanation of health disparities. Relatively few studies, however, have examined discrimination and health among Asian Americans. In fact, 5 recent reviews noted the limited research on discrimination among Asian Americans (3, 6–8). The review by Kressin et al. called this shortage an ''obvious gap in the literature'' (9, p. 727). Our paper narrows the gap by providing the following: 1) an overview of discrimination encountered by Asian Americans; 2) a review of the literature on discrimination and health; and 3) suggestions for future research.

DEFINITIONS AND THE ICEBERG METAPHOR

Racism can be defined as ''a set of institutional conditions of group inequality and an ideology of racial domination, in which the latter is characterized by a set of beliefs holding that the subordinate group is biologically or culturally inferior to the dominant racial group'' (10, p. 319). Discrimination is defined as the 1) ''differential treatment on the basis of race that disadvantages a racial group'' and 2) ''treatment on the basis of inadequately justified factors other than race that disadvantages a racial group'' (6, pp. 4 and 39). Accordingly, racism is a broad construct that reflects the processes, norms, ideologies, and behaviors that perpetuate racial inequality. Discrimination is viewed as the component of racism focused on behaviors.

Carmichael and Hamilton (11) argued that racism exists at the individual and institutional levels. More recent scholarship has delineated other levels (3, 12, 13). The basic idea is that racism is not merely the actions and prejudices of individuals against individuals. More importantly, racism may be perpetuated by social organizations. Hence, institutional racism represents the processes built into social entities—such as governments, bureaucracies, and culture—that reinforce the racial hierarchy.

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Discrimination may also exist at multiple levels, as described with the iceberg metaphor shown in Figure 1 (14). Hate crimes and other overt acts of racial bias sit at the tip of the iceberg. In 2006, the Federal Bureau of Investigation recorded 239 anti-Asian hate crimes, representing about 4.8% of all race-related hate crimes (15). These overt actions, however, are far less prevalent than more subtle, symbolic, and mundane types of discrimination, such as being treated with less respect. Although less dramatic, these mundane actions may be as damaging as more overt ones (16–18).

The base of the iceberg, however, is often more hazardous than the tip. What lies below the surface determines the direction and velocity of the iceberg and, when unrecognized, can cause catastrophes. The bottom of the iceberg represents institutionalized discrimination, which may be considered a fundamental cause of health and health disparities. Addressing the tip of the iceberg through protective legislation and cultural competency efforts is important. The metaphor, however, highlights the need to change the structural base beneath the surface in order to change the course of health disparities. For Asian Americans, this base may include processes such as residential segregation and immigration policy.

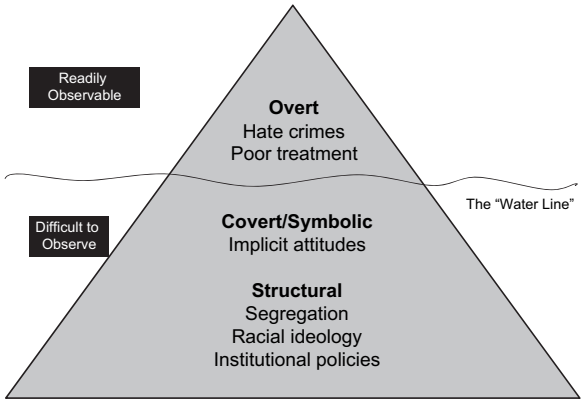

Figure 1. The discrimination iceberg. Adapted from *Asian American Communities and Health: Context, Research, Policy and Action* (14) and reprinted with permission from Jossey-Bass, Inc., a subsidiary of John Wiley & Sons, Inc.

EVIDENCE FOR DISCRIMINATION AGAINST ASIAN AMERICANS

We begin with a brief review of historic discrimination against Asian Americans to set the context (although a full accounting is beyond our scope) (19–21). Beginning in the late 1800s, individuals, organizations, and the government systematically undermined the human rights of Asians in the United States. Some actions included outright violence. For instance, Chan (19) documents how a mob in 1908 drove Asian-Indian workers from their camp and set it on fire. These actions also included laws excluding Asians from citizenship, suffrage, and land ownership (22, 23). Congressional legislation (e.g., the Chinese Exclusion Law of 1882), Presidential declarations (e.g., Roosevelt's Executive Order for the Internment of Japanese Americans), and Supreme Court interpretations (*United States v Bhagat Singh Thind*) institutionalized and affirmed discrimination at the federal level (22, 24). These policies were supported by pseudoscientific ''studies'' suggesting that specific races themselves were the cause of certain illnesses and arguments that social control of these races would prevent the spread of communicable diseases (14, 25). In Great Britain, James Cantile, founder of the Royal Society of Tropical Medicine and Hygiene, asserted, ''There seems but one way to prevent [the spread of leprosy] and that is the exclusion or the right control of all Chinese coolies'' (26, p. 126). Similar arguments were raised that deportation of groups like Filipinos from the United States would serve the public's health (27). Given this historic backdrop, it is not surprising that one of the first empirical studies of prejudice for any population, published by LaPiere in 1934, was on the experiences of a Chinese couple (28).

Bogardus (29) documented considerable anti-Asian sentiment beginning years earlier, in 1926. His study asked 1,700 college students across the United States to evaluate 30 groups on social distance, the degree to which a respondent felt affinity or animosity toward a given group. Students felt the least social distance to the English and ranked them first. By comparison, the Irish were fifth, and ''Negros'' were 26th. Chinese, Koreans, and Asian Indians were ranked 28th, 29th, and 30th, respectively.

Public sentiment and policy began to shift in the middle of the 20th century. Explicitly discriminatory policies began to erode during the civil rights movement leading to the 1960s. In 1966, an article in the *New York Times Magazine* began to popularize the idea of Asian Americans as a ''model minority'' (30, p. 180). This view portrays Asian Americans as having overcome the barriers of minority status and successfully integrating into mainstream US society. Superficially, this stereotype appears positive, but it is criticized for masking the socioeconomic difficulties faced by many Asian Americans (31, 32). Further, an underlying assumption of the model minority stereotype is that Asian Americans have overcome racial bias (21, 32–34). Sue et al. argue that this stereotype has been a ''reason to ignore the problem of discrimination against Asian Americans and can be used as a convenient rationale to neglect them in research and intervention programs'' (35, p. 78).

Public opinion polls show that Americans continue to express mixed feelings toward Asian Americans. On some metrics, Americans feel positively toward Asian Americans, particularly in comparison with African Americans. Nevertheless, these positive feelings are still not on par with the positive feelings that Americans have for whites. For instance, respondents to the General Social Survey (GSS) in 1990 were most likely to rank African Americans as ''violent'' or ''unintelligent,'' followed by Asians and then whites (36). Respondents also ranked Asians as the most unpatriotic of these groups. In 2005, Parillo and Donoghue (37) replicated Bogardus' study and found that African Americans were ranked ninth, while Chinese were ranked 17th, Koreans 24th, and Asian Indians 26th. At the bottom

Table 1. Social Distance Measures From the General Social Survey, 2000, 2004, and 2006[a]

	Which Group Do You Have the *Least* in Common With? (GSS 2000)		Which Group Do You Have the *Most* in Common With? (GSS 2000)		Oppose/Strongly Oppose if a Close Relative Married a/an … (GSS 2004)		Oppose/Strongly Oppose if a Close Relative Married a/an … (GSS 2006)	
	No.	%	No.	%	No.	%	No.	%
Asian		34.0		7.5		17.8		17.3
Black		16.8		7.7		26.5		24.7
Hispanic		13.8		15.2		17.5		17.8
White		2.8		22.1		1.4		2.5
Jew		13.9		13.9		N/A		N/A
Equal with all		13.1		16.5		N/A		N/A
None		5.7		17.1		N/A		N/A
Sample size	1,253		1,293		900		1,978	

Abbreviations: GSS, General Social Survey; N/A, not applicable.
[a] All estimates are tabulated by the authors and are weighted to account for the sampling design (167).

were Vietnamese, Muslims, and Arabs, ranking 28th, 29th, and 30th, respectively.

Table 1 shows data from more recent (GSS 2000, GSS 2004, GSS 2006) surveys. In 2000, respondents identified Asian Americans as being the group with whom they had the *least* in common. Specifically, 34% of participants reported that they had the least in common with Asians, compared with 16.8% for blacks and 2.8% for whites. Confirming this finding, Asians were also ranked at the bottom as the group with whom the respondents had the *most* in common. Additionally, the GSS asked participants if they would favor or oppose a family member's marrying someone of a particular race. In the year 2006, 17% of respondents opposed a family member's marrying an Asian person compared with 2.5% for marrying a white person and 24.7% for marrying a black person.

Some of the negative attitudes that Americans have for Asian Americans relate to immigration. Respondents in the GSS 1990 ranked Asians as more unpatriotic than blacks or whites (36). Other polls show similar feelings. A survey conducted in 2001 found that 32% of Americans thought that Chinese Americans were more loyal to China than to the United States, 24% thought that Chinese Americans were taking away too many jobs from other Americans, and 28% felt that the increase in Asian immigration was bad for America (38).

Moreover, Asian Americans themselves report experiencing racial bias (16, 17). A 1987 survey of Filipino, Chinese, and Japanese Americans found that more than 60% stated that racism was a significant barrier to upward mobility (39). Polls from the 1990s found that between 43% and 63% of Asian Americans reported racial discrimination (40).

More recent surveys echo these findings. For example, the 2002–2003 National Latino and Asian-American Study (NLAAS) found that 74% of Asian Americans reported experiencing some form of routine unfair treatment in their lifetime, and 62% reported being disliked, treated unfairly, or seeing friends being treated unfairly because they were Asian (41). Several studies have found that Asian adolescents report more discrimination from their peers than adolescents from other ethnic groups (42–44). Asian students may encounter discrimination because of their accents, "nerdiness," small stature, and foreign status (42, 44).

Reports of discrimination vary by subgroup. For instance, 38% of Vietnamese in the National Latino and Asian-American Study reported unfair treatment compared with 61% of Chinese (14). Similarly, the 2003 California Health Interview Survey (CHIS) found that 65% of Asian Americans overall reported being unfairly treated because of their race in their lifetime. However, this rate ranges from 42% among Vietnamese to 75% among Japanese (14). Among participants of the Study of Women's Health Across the Nation (SWAN), 36% of Japanese women reported discrimination compared with 60% of Chinese (45). In the United Kingdom, 7% of Bangladeshis, 12% of Asian Indians, and 16% of Pakistanis were insulted based on their race, religion, or language in the past year (46).

As suggested by the iceberg metaphor, reports of discrimination should be less common for overt bias and more common for subtle, symbolic, and structural discrimination. Consistent with this idea, Beiser et al. (47) found that, overall, 26% of Southeast Asian refugees in Vancouver, Canada, reported discrimination. Among those reporting discrimination, 4.8% reported overt threats, 4.8% reported racial graffiti on their personal property, and 4.2% reported physical abuse. In contrast, more subtle experiences were more prevalent: 83% reported being looked down upon, and 74.4% reported being unfairly treated.

Table 2 shows the reporting of racial discrimination from adult respondents to the 2007 California Health Interview Survey. Threats and harassment in the past year were the least commonly reported type of discrimination, ranging from 12% among Japanese to 19% among Filipinos. Discrimination based on accent or speech was more common, ranging from 18% among Japanese to 39% among South Asians. Finally, disrespect due to race in the past year was reported by a third of the Japanese and by half of all other respondents. Participants were also asked about settings

Table 2. Percent Reporting Racial Discrimination, by Asian Ethnic Group, California Health Interview Survey, 2007[a]

	Chinese (n = 320)	Japanese (n = 174)	Filipino (n = 227)	South Asian (n = 140)	Other Asian or Pacific Islander (n = 222)
Experienced discrimination in the past 12 months, %					
Threatened/harassed	16	12	19	17	19
Criticized accent/speech	32	18	41	39	39
Less respect	49	36	48	50	48
Settings where discrimination occurs, lifetime, %					
School	65	57	50	51	65
Work	59	47	55	55	59
Police/courts	24	19	19	31	33
Medical care	17	20	21	19	28
Other	52	52	39	45	49

[a] Data come from a restricted California Health Interview Survey data file; these data are not publically available.

where discrimination occurred within their lifetime. Because most individuals spend more of their time in educational or work settings than in other settings (e.g., in courts), it is not surprising that discrimination at school and work was cited most often.

Direct evidence for discrimination against Asian Americans comes from a study by the Department of Housing and Urban Development (HUD) published in 2003 (48). In this study, a paired-testing method was used, whereby 2 individuals are provided with identical background characteristics (e.g., income, housing preferences), except for their race. These pairs are then instructed to systematically document their home-buying process. This study found that 20% of Asian Americans experienced discrimination in home buying across the nation, a level equivalent to that of African Americans.

In summary, recent evidence shows that Asian Americans experience considerable racial discrimination. Taken together, these data indicate that experiences of discrimination fall along a gradient, with the most common being subtle signs of disrespect. Polls show that many Americans report a high degree of social distance to Asian Americans and view Asian Americans as unpatriotic. When asked about their own experiences, many Asian Americans cite discrimination based on race/ethnicity, speech, and nativity.

DISCRIMINATION AND HEALTH

Empirical associations between self-reported discrimination and health

Table 3 summarizes the articles on self-reported discrimination among Asians or Pacific Islanders. These articles were obtained through a search on PubMed, Web of Science, and Google Scholar with the following keywords: *racism, discrimination, unfair treatment, racial bias, Asian, Pacific Islander*. The search gathered peer-reviewed articles published from January 1960 to January 2009, yielding 183 articles. This search was supplemented by reviewing the work of scholars publishing in this area (e.g., Samuel Noh), from recommendations by referees, and from bibliographies of other review articles (4, 5, 7, 8). These efforts yielded an additional 11 articles, for a total of 194. We reviewed the abstracts, titles, and tables of these articles and excluded those not assessing empirical associations between self-reported discrimination and a health or behavioral outcome among our target population. Sixty-two articles met our review criteria.

The majority ($n = 40$) of these studies focused on mental health outcomes. Among these, most ($n = 33$) focused on global markers of psychological functioning, such as self-esteem (43, 49–80). Eight focused on clinical outcomes, such as depressive disorders (46, 60, 76, 81–85). Thirty-seven of these 40 studies reported associations in the hypothesized direction (i.e., discrimination was associated with increased risk of mental health problems), with the remaining 3 showing no association (59, 76, 86).

Sixteen studies focused on physical health outcomes, with most ($n = 10$) focused on global markers of physical health (52, 54–56, 75, 76, 86–89). Five of 7 articles on physical functioning and cardiovascular health reported the hypothesized association (45, 54–56, 76, 90, 91). Discrimination was also associated with increased risk for diabetes and breathing problems, glycemic control, cholesterol, diabetes, and obesity (91, 92). The only study of birth weight did not find the hypothesized relation (93). However, this study did not disaggregate Asian respondents from other respondents and, further, the measure of discrimination was embedded into a broader index of social adversity.

Another 20 studies examined health behaviors, including substance use and help seeking (41, 53, 55, 56, 58, 71, 82, 88, 94–105). Eight studies reported that discrimination was

Table 3. Empirical Articles on Self-reported Discrimination Among Asians or Pacific Islanders[a]

First Author, Year (Reference No.)	Discrimination Measure	Population	Outcomes	Results	Moderation
		Mental health			
Noh, 1996 (64)	Two items on social discrimination and sense of marginalization in 31-item scale measuring chronic strains	Korean Mental Health Study—community sample of Korean immigrants in Toronto ($n = 800$)	Korean version of CES-D (168)—depressive symptoms	Hypothesized association	Social and psychological resources—no significant interaction with discrimination
Pernice, 1996 (68)	Three items on discrimination in the health-care setting, workplace discrimination, and negative stereotypes in a 16-item scale of postmigration experiences	Nonrandom sample of immigrants to New Zealand ($N = 219$). Analysis not stratified, not controlled by race (Pacific Islanders = 57)	HSCL 25 (169)—depressive symptoms and anxiety	Hypothesized association	
Noh, 1999 (65)	One item, "In Canada, have you been discriminated against because of your race?"	Refugee Resettlement Project: second wave, sample of Southeast Asian refugees in Vancouver ($N = 647$). Analysis not stratified, not controlled for Asian ethnicity (Chinese = 281, Vietnamese and Laotian = 366)	Depressive affect measure (170)—depressive symptoms	Hypothesized association	Forbearance—significant interaction with discrimination; ethnic identity—significant 3-way interaction with forbearance and discrimination
Liebkind, 2000 (59)	18 items of discrimination and racism (e.g., applying for a job, atmosphere at work, renting or buying housing, treatment in health-care setting)	Community sample of immigrants in Helsinki, Finland ($N = 1,146$). Analysis stratified by ethnicity (Vietnamese = 109)	HSCL 25—depressive and anxiety symptoms	No significant relation for Vietnamese	
Ying, 2000 (78)	One item about the extent to which respondents "felt they were subject to racial discrimination"	US- and foreign-born Chinese-American college students ($n = 353$)	Sense of Coherence Questionnaire (171)	Hypothesized association	
Abouguendia, 2001 (49)	Two items on out-group hassles ("deciding whether certain actions are made because of my ethnic origin" and "my fluency in English being underestimated") in 29-item measure on hassles	Canadian South Asian university students ($n = 74$)	Zung Self-Rating Depression Scale (172)—depressive symptoms	Hypothesized association	
Loo, 2001 (60)	Race-related Stressor Scale—3-item scale based on race-related experiences of Asian-American Vietnam War veterans (e.g., racial slurs, treated unfairly, treated as inferior)	Asian-American Vietnam veterans ($N = 300$). Analysis not stratified, not controlled for Asian ethnicity (Chinese = 42, Korean = 9, Japanese/Okinawan = 63, Filipino = 36, Chamorro = 39, mixed Asian other = 111)	1) Brief Symptom Inventory—general psychiatric symptoms; 2) Mississippi Scale for PTSD	Hypothesized association	
Mak, 2001 (61)	Two items on the frequency of being "teased or insulted" or "threatened or attacked" because of race	Community sample of Chinese immigrants to Australia ($n = 372$)	GHQ 12—psychological distress	Hypothesized association	

Karlsen, 2002 (76)	Two items (experience of racism within the last year and employment discrimination)	Fourth National Survey of Ethnic Minorities—United Kingdom nationally representative sample ($N = 5,197$). Analysis stratified by ethnicity (Indian = 973, Pakistani and Bangladeshi = 848, Chinese = 104)	Self-assessed health; disability; high blood pressure; diabetes; heart attack; breathing problems; depression; psychosis	No association in disaggregated analysis, hypothesized association for most health outcomes in aggregated analysis	
Gee, 2002 (54)	Two items (“Thinking back on your life, have you ever been treated unfairly or badly because of 1) race or ethnicity; 2) speaking a different language or your accent?”)	Chinese-American Psychiatric Epidemiological Study—community sample of Chinese Americans in Los Angeles ($n = 1,503$)	SCL-90-R—general psychological distress; SF 36—global markers of physical health and functioning	Hypothesized association for mental health outcomes only	
Utsey, 2002 (69)	Index of Race-related Stress–Brief Version (173) (22-item measure evaluating racist situations and their effect); 3 dimensions: institutional, individual, cultural	Community sample of African Americans, Asians, and Latinos living in the Northeast ($N = 160$). Sample controlled for race (Asian = 45)	WHO QOL Brief—quality of life	Hypothesized association for cultural racism	
Barry, 2003 (77)	Two items assessing perceptions of personal and group discrimination (“I find that Americans treat me as an equal” and “People from my ethnic group are discriminated against”)	Community sample of East Asian immigrants ($n = 170$)	1) Rosenberg Self-Esteem Scale (174)—global personal self-esteem; 2) collective self-esteem measure (175)—group self-esteem	Hypothesized direction for both personal and group discrimination	
Mossakowski, 2003 (62)	Everyday Discrimination Scale (131) (9-item scale of frequency of chronic and routine unfair treatment (e.g., being treated with less respect, treated with less courtesy, worse service at restaurants)) and Lifetime Discrimination Scale (single item, “Have you ever been treated badly because of your race or ethnicity?”)	Filipino-American Community Epidemiological Study—community sample of Filipino Americans in Honolulu and San Francisco ($n = 2,241$)	SCL-90-R—general psychological distress	Hypothesized association for both types of discrimination; lifetime becomes nonsignificant when everyday discrimination is included	Ethnic identity—significant interaction with lifetime racism, not everyday discrimination
Noh, 2003 (66)	Eight items measuring frequency of personal experiences with discrimination, such as being hit or handled roughly, insulted or called names, treated rudely, or treated unfairly	Growing Up Canadian Project—community sample of Korean immigrant households in Toronto ($n = 180$)	Korean version of CES-D—depressive symptoms	Hypothesized association	Coping styles—significant interaction with discrimination; acculturation—significant 3-way interaction with coping and discrimination

Table continues

Table 3. Continued

First Author, Year (Reference No.)	Discrimination Measure	Population	Outcomes	Results	Moderation
Yoshikawa, 2004 (71)	Three scales of discrimination experiences—racism (5 items, "How often have you had trouble finding lover relationships or boyfriends because of your race or ethnicity?"); homophobia (3 items, "As you were growing up, how often did you hear that homosexuals are not normal?"); and antiimmigrant (3 items, "As an adult, how often were you disrespected because of how you wrote or spoke English?")	Community sample of Asian and Pacific Islander gay men ($N = 192$). Analysis controlled for Asian ethnicities (East Asian = 102, Southeast Asian = 46, South Asian = 21, Pacific Islander = 4, mixed = 19)	CES-D—depressive symptoms; HIV risk behavior	Hypothesized association of racism with depressive symptoms, antiimmigrant discrimination associated with HIV risk behavior	Family communication—significant interaction with discrimination
Bhui, 2005 (46)	Three items on job-related racial discrimination and general perceived racism (e.g., "In the last 12 months has anyone insulted you for reasons having to do with your ethnicity?")	Ethnic Minority Psychiatric Illness Rates in the Community Study—representative sample of workers in the United Kingdom ($N = 2,054$). Sample stratified by ethnicity (Pakistani = 248, Bangladeshi = 141, Indian = 375)	Revised clinical interview schedule—presence of mental disorders 2 weeks before interview	Hypothesized association for Asian Indians and Bangladeshis reporting racial insults	
Karlsen, 2005 (84)	Three items on job-related racial discrimination and general perceived racism (e.g., "In the last 12 months has anyone insulted you for reasons having to do with your ethnicity?")	Ethnic Minority Psychiatric Illness Rates in the Community Study—representative sample of workers in the United Kingdom ($N = 2,054$). Sample stratified by ethnicity (Pakistani = 248, Bangladeshi = 141, Indian = 375)	Revised clinical interview schedule—risk of psychosis	Hypothesized association	
Loo, 2005 (85)	Impact of Race-related Events, a scale used to assess PTSD symptoms associated with the presence of a race-related event	Asian-American Vietnam veterans ($N = 300$). Sample not stratified, not controlled for Asian ethnicity (Japanese = 64, Chinese = 43, Korean = 9, Filipino = 36, Chamorro = 40, Hawaiian = 35, mixed Asian = 73)	Mississippi Scale for PTSD	Hypothesized association	
Yoo, 2005 (73)	Asian-American Perceived Racial Discrimination Scale, a 10-item measure of perceived encounters of discrimination (e.g., treated differently because Asian)	Asian-American college students in a Midwest college ($N = 155$). Population not stratified, not controlled for Asian ethnicity (Korean = 37, Chinese = 16, Hmong = 51, Vietnamese = 14, other Asian = 37)	PANAS (176)—satisfaction with life, positive and negative affect	Direct effect not reported, moderation effect only	Ethnic identity—no significant 2-way interaction with discrimination; significant 3-way interaction with 1) problem solving and discrimination and 2) cognitive restructuring and discrimination
Beiser, 2006 (51)	One item, "In Canada, have you been discriminated against because of your race?"	Refugee Resettlement Project—sample of adult "boat people" in Vancouver in 1981 ($N = 647$). Analysis controlled for Asian ethnicities (Chinese = 281, Vietnamese = 265, Filipino = 442)	Depressive affect measure (170)—depressive symptoms	Hypothesized association	Ethnic identity—significant interaction with all 3 discrimination items

Greene, 2006 (43)	Seven items about experiences of racial discrimination by adults (“How often are you treated unfairly by adults because of your race or ethnicity?”); 7 items about experiences of racial discrimination by peers (“How often are you called names or insulted by other teenagers because of your race or ethnicity?”)	School sample of high school students ($N = 136$). Analysis controlled for race (Asians = 57)	Children’s Depression Inventory (177)—depressive symptoms; Rosenberg Self-Esteem Scale (174)—personal global self-esteem	Hypothesized association	Ethnic identity—significant interaction with peer discrimination on self-esteem only
Landrine, 2006 (58)	General Ethnic Discrimination Scale (58) (reported frequency of 18 types of discrimination experiences (e.g., work, public places, health care, and school))	Sample of community members and university students ($N =$ 1,569). Analysis controlled for race (Asians = 94)	HSCL 58—psychiatric symptoms; cigarette smoking	Hypothesized association	
Gee, 2007 (83)	Everyday Discrimination Scale (131)	National Latino and Asian-American Study—national sample of Asian Americans ($N = 2,047$). Analysis controlled for Asian ethnicity (Chinese = 587, Vietnamese = 265, Filipino = 441, and other Asian = 752)	WHO CIDI—past-year depressive and anxiety disorders	Hypothesized association	
Lam, 2007 (57)	One item, “Racism affects the lives of people and their racial group”	Vietnamese-American undergraduates ($n = 122$)	Depression; anxiety; sense of coherence	Hypothesized association for depression and sense of coherence	
Mossakowski, 2007 (63)	Three items on being treated badly in one’s lifetime because of race/ethnicity, because of speaking another language, and because of speaking with an accent	Filipino-American Community Epidemiological Study—community sample of Filipino Americans in Honolulu and San Francisco ($n = 2,129$)	SCL-90-R—depressive symptoms	Hypothesized association	
Noh, 2007 (67)	Eight items measuring frequency of personal experiences with discrimination (e.g., being hit or handled roughly, insulted or called names, treated rudely, or treated unfairly)	Korean Mental Health Study—community sample of Korean immigrant households in Toronto ($n = 180$)	Korean version of CES-D—positive affect and depressive symptoms	Hypothesized association for subtle discrimination and depressive symptoms; overt discrimination and positive affect	
Poyrazli, 2007 (50)	One item, “I feel that I receive unequal treatment because of my race or ethnicity”	American ($N = 241$, Asian = 9) and international ($N = 198$, Asian = 129) college students from a university. Analysis controls for race	Homesickness	Hypothesized association	
Wadsworth, 2007 (70)	One item about discrimination experiences at work (“Have you had any experience of discrimination at work?”)	United Kingdom community sample of employed adults ($N = 626$). Sample stratified by ethnic groups (Bangladeshi = 206)	Work stress; psychological distress	Hypothesized association for both outcomes	

Table continues

Table 3. Continued

First Author, Year (Reference No.)	Discrimination Measure	Population	Outcomes	Results	Moderation
Asakura, 2008 (52)	10 items of discrimination experiences at work (''I feel uncomfortable when others make jokes about people of my ethnic background,'' and ''I sometimes feel that my ethnicity is a limitation'')	Convenience sample of Japanese-Brazilian workers in Japan ($n = 313$)	GHQ 12—mental health symptoms; self-rated health, checklist of somatic symptoms	Hypothesized association	Education—no significant interaction with discrimination
Hwang, 2008 (81)	General Ethnic Discrimination Scale (58)	Asian-American ($n = 107$) and Latino ($n = 79$) college students from a university located in the Rocky Mountain region of the United States	Suicidal ideation; psychological distress; state anxiety; trait anxiety; clinical depression	Hypothesized association	
Liang, 2008 (79)	Asian-American Racism-related Stress Index (134)—29 items assessing stress associated with race-specific events Asian Americans experience (e.g., ''You learn that Asian Americans were historically targets of racist actions'' and ''You are told that you speak English so well'')	Asian-American college students from a mid-Atlantic university ($n = 134$)	College Adjustment Scale (178)—self-esteem problems	Hypothesized association	Collective self-esteem—no significant interaction with racism-related stress, although it was a partial mediator for racism-related stress and self-esteem
Yip, 2008 (72)	Three items assessing the frequency of racial discrimination	National Latino and Asian-American Study—national sample of Asian Americans ($N = 2,047$). Analysis controlled for Asian ethnicity (Chinese = 586, Vietnamese = 508, Filipino = 491, and other Asian = 462)	Kessler Psychological Distress Scale (179)—prevalence of negative feelings	Hypothesized association	Ethnic identity—significant interaction with discrimination for US born, variation across age groups
Yoo, 2008 (74)	Two vignettes of hypothetical racially motivated scenarios	Asian-American college students ($n = 128$)	PANAS—positive and negative affect	Hypothesized association for negative affect only	Ethnic identity—significant 2-way interaction with discrimination for positive affect, significant 3-way interaction with generation and discrimination for positive and negative affect
Lee, 2005 (80)	Perceived Discrimination Scale (''People treat you badly because they think you do not speak English well''; ''You think it will be difficult to find work because you are of Korean descent''; and ''You feel unaccepted by others because of your Korean culture'')	Korean-American college students ($n = 84$)	CES-D—depressive symptoms; Rosenberg Self-Esteem Scale; Social Connectedness Scale-Campus Version	Hypothesized association	Ethnic identity—significant interaction with discrimination for the outcomes of CES-D and social connectedness

		Health behaviors and substance use			
Yen, 1999 (105)	Four items, "Considering your job, have you experienced discrimination because of gender, race, or color in the following: in dealing with passengers? Public other than passengers? Promotions? Disciplinary actions?"	Community sample of bus drivers ($N = 1,542$). Analysis controlled for race (Asians = 137)	Alcohol consumption	Hypothesized association	
Yen, 1999 (104)	Two sets of questions: 1) reactions to racial discrimination and 2) lifetime experiences	Community sample of bus drivers ($N = 1,542$). Analysis controlled for race (Asians = 137)	Alcohol consumption	Hypothesized association for those with high reports of discrimination	
Iyer, 2003 (99)	Racial Teasing Scale (180)—8 items of perceived frequency and impact of racial/ethnic teasing, including name-calling, behavior related; stereotyping, appearance related; and social exclusion	American undergraduate women of South-Asian descent ($n = 122$)	Body image disturbance; disturbed eating behavior	Hypothesized association for both outcomes	
Blanchard, 2004 (94)	Five items rating interactions with providers based on race	Commonwealth Fund 2001 Health-Care Quality Survey—nationally representative sample of adults ($N = 6,722$). Analysis not stratified, not controlled by race (Asians = 669)	Health-care utilization	Hypothesized association	
Wilson, 2004 (103)	Qualitative study	Community sample of Asian and Pacific Islander gay men ($n = 23$)	HIV risk behaviors	Those who attributed discrimination to themselves engaged in more risky behavior	
Spencer, 2004 (101)	Two items, "Thinking back on your life, have you ever been treated unfairly or badly because of 1) race or ethnicity or 2) speaking a different language or your accent?"	Chinese-American Psychiatric Epidemiological Study—community sample of Chinese Americans in Los Angeles ($n = 1,503$)	Utilization of mental health services (formal, informal, friends/family support)	Hypothesized association for language discrimination and informal use and friends/family support. Hypothesized association between racial discrimination and formal use	
Choi, 2006 (96)	Two items of unfair treatment in the neighborhood and at school because of ethnicity	Community sample of adolescents in 4 high schools in Seattle ($N = 2,305$). Analysis controlled for race (Asian = 493)	Substance use	Hypothesized association for some abuse behaviors	Race—significant effect of race on discrimination and substance use for Asians
Jang, 2005 (88)	One item on the experience of disrespect in a health-care setting	Community sample of Korean elderly living in 2 Florida cities ($n = 230$)	Self-rated health; hospital visits; satisfaction with health care	Hypothesized association with satisfaction with health care only	

Table continues

Table 3. Continued

First Author, Year (Reference No.)	Discrimination Measure	Population	Outcomes	Results	Moderation
Trivedi, 2006 (102)	Two items, "Thinking of your experiences with receiving health care in the past 12 months, have you felt you were discriminated against?" "What do you think was the reason for the discrimination?"	California Health Interview Survey, a statewide sample of adult Californians ($n = 54,968$). Analysis stratified by race (no report of unweighted sample size)	Use of 6 preventive health services	Hypothesized association for 4 out of the 6 services	
Gee, 2007 (98)	Everyday Discrimination Scale (131) and Unfair Events Scale—count of respondents' endorsements to being treated "unfairly or badly" because of race	Filipino-American Community Epidemiological Study—community sample of Filipino Americans in Honolulu and San Francisco ($n = 2,217$)	Illicit drug use; prescription drug use; alcohol dependence	Hypothesized association	Ethnic identity—significant interaction with discrimination; nativity—significant interaction with discrimination; age—no significant interaction; gender—no significant interaction
Reddy, 2007 (100)	Measure of Ethnic Teasing—26-item scale across 4 areas of ethnic teasing: hair, dress, skin color, and facial features	South Asian women between 18 and 30 years of age, living in the United States ($n = 74$)	Body esteem; eating attitudes	Hypothesized association, mediated by cultural conflict	
Burgess, 2008 (95)	Experience of discrimination (181)—6-item scale of experiences of discrimination in getting a job, being at work, getting housing, getting a mortgage, applying for social services, and dealing with the police	Survey of the Health of Adults, the Population, and the Environment—community sample of adults in Minnesota ($N = 10,098$). Analysis stratified by race (Southeast Asian = 461)	Mental health-care utilization	Hypothesized association	
Chae, 2008 (41)	Everyday Discrimination Scale (131)	National Latino and Asian-American Study—national sample of Asian Americans ($N = 1,977$). Analysis controlled for Asian ethnicity (Chinese = 471, Filipino = 380, Vietnamese = 419, other Asian and Pacific Islander = 399, multiracial = 308)	Smoking status	Hypothesized association	Ethnic identity—significant interaction with discrimination
Chae, 2008 (82)	Everyday Discrimination Scale (131)	National Latino and Asian-American Study—national sample of Asian Americans ($N = 2,007$). Analysis controlled for Asian ethnicity (Chinese = 477, Filipino = 384, Vietnamese = 433, other Asian and Pacific Islander = 403, multiracial = 310)	WHO CIDI—lifetime history of alcohol abuse/dependence disorder	Hypothesized association	Ethnic identity—significant interaction with discrimination
Chae, 2008 (53)	Collective Self-Esteem Scale (175)—4-item scale assessing perceptions of whether white gay men "respect" or consider Asian gay men "good," "unworthy," or "less desirable"	Community sample of Asian and Pacific Islander gay men ($N = 192$). Analysis controlled for Asian ethnicities (East Asian = 100, Southeast Asian = 25, South Asian = 20, Filipino = 29, other = 18)	CES-D—depressive symptoms; UAI	Hypothesized association for depressive symptoms only	Racial attraction—significant interaction with group devaluation and UAI; racial identity—significant interaction with group devaluation and UAI; racial group membership—significant interaction with group devaluation and UAI

Crawley, 2008 (97)	Two items, "Was there ever a time when you would have gotten better medical care if you had belonged to a different racial or ethnic group?" "Think about the last time this happened. How long ago was that?"	California Health Interview Survey—statewide sample of adult Californians ($N = 11,245$). Analysis controlled for race (Asian = 3,875, Pacific Islander = 1,257)	Endoscopy and mammography screening	Hypothesized association for women only	
			Physical health		
Shiono, 1997 (93)	One item, "Did you experience one or more incidents of racial discrimination during pregnancy?"	Women's Lifestyle in Pregnancy Study—pregnant women who received prenatal care in Chicago and New York City clinics ($N = 1,150$). Analysis controlled for race (Chinese = 144)	Birth weight	No association	
Karlsen, 2004 (89)	One item, "Do you worry about being racially harassed?"	Fourth National Survey of Ethnic Minorities—United Kingdom nationally representative sample, ethnic minorities only ($N = 2,351$). Analysis not stratified, not controlled by race (Indian = 973, Pakistani and Bangladeshi = 848, Chinese = 104)	Self-rated health	Hypothesized association	
Brown, 2006 (45)	Everyday Discrimination Scale (131)	Study of Women's Health Across the Nation—women enrolled in a longitudinal study of menopause across 7 sites in the United States ($N = 3,300$). Analysis stratified by ethnicity (Chinese = 250, Japanese = 281)	Blood pressure	No association	
Harris, 2006 (55)	Five items across 2 dimensions: experience of ethnically motivated attack, or unfair treatment because of ethnicity in health setting, work, or gaining housing	New Zealand Health Survey—sample of whites and Maoris only ($N = 10,377$). Analysis stratified by race (Maori = 4,108)	SF 36—self-rated health, physical functioning, mental health, cardiovascular disease, smoking	Hypothesized association	
Harris, 2006 (56)	Five items: experience of ethnically motivated attack, or unfair treatment because of ethnicity in health setting, work, or gaining housing	New Zealand Health Survey—nationally representative sample ($N = 12,500$). Analysis controlled for race (Asian = 1,169, Maori = 4,108, Pacific Islander = 900)	SF 36—self-rated health, physical functioning, mental health, cardiovascular disease, smoking	Hypothesized association for all outcomes; Maori have highest odds for reporting discrimination	
Gee, 2006 (106)	Everyday Discrimination Scale (131) and Unfair Events Scale—3 items of unfair events based on race, language, and accent	Filipino-American Community Epidemiological Study—community sample of Filipino Americans in Honolulu and San Francisco ($n = 2,241$)	Current health conditions	Hypothesized association	Social support—significant 2-way interaction with discrimination; significant 3-way interaction with region and discrimination

Table continues

Table 3. Continued

First Author, Year (Reference No.)	Discrimination Measure	Population	Outcomes	Results	Moderation
Piette, 2006 (91)	Five items about perceived discrimination in a health-care setting on the basis of race or ethnicity, education or income, age, and gender (for women only)	Adults with diabetes treated in county health-care system, a university-based health-care system, and 3 Department of Veterans Affairs systems (N = 848). Analysis controlled for race (Asian and Pacific Islander and "other" = 147)	Glycemic control; cholesterol levels; diabetes symptoms; physical functioning	Hypothesized association	
Gee, 2007 (87)	Everyday Discrimination Scale (131)	National Latino and Asian-American Study—national sample of Asian Americans (N = 2,095). Analysis stratified by Asian and Pacific Islander ethnicity (Chinese = 600, Vietnamese = 520, Filipino = 508)	WHO CIDI—chronic physical conditions	Hypothesized association	
de Castro, 2008 (90)	Two items of work discrimination, "Since I am Filipino, I'm expected to work harder" and "Since I'm Filipino, it is hard to get promotions/raises"	Filipino-American Community Epidemiological Study—community sample of Filipino Americans in Honolulu and San Francisco (n = 1,652)	Cardiovascular conditions	Hypothesized association	Duration in the United States—significant interaction with discrimination
Gee, 2008 (92)	Everyday Discrimination Scale (131)	National Latino and Asian-American Study—national sample of Asian Americans (N = 2,047). Analysis controlled for Asian and Pacific Islander ethnicity (Chinese = 587, Vietnamese = 265, Filipino = 442, and other Asian = 753)	Body mass index	Hypothesized association	Time in the United States—significant interaction with discrimination
Sohn, 2008 (86)	Two items for experience of discrimination during military service and health-care provider sensitivity toward racial/ethnic background	2001 Veteran Identify Program Survey—national sample of military veterans, nonwhite respondents only (N = 1,737). Analysis controlled for race (Asian and Pacific Islander = 208)	SF 12—general health status	Hypothesized association for health-care discrimination only	
Yoo, 2009 (75)	Two items of unfair treatment by doctors or medical staff due to 1) race/ethnicity or 2) English ability	Commonwealth Fund 2001 Health-Care Quality Survey, Asian supplement—nonrandom sample of Asians living in the United States (N = 888). Analysis controlled for Asian ethnicity (Korean = 267, Chinese = 376, Vietnamese = 245)	Chronic health conditions, both physical and mental health	Hypothesized relation, racial discrimination becomes nonsignificant after adding language discrimination	Time in the United States—no significant 3-way interaction with racial discrimination and nativity; significant 3-way interaction with language discrimination and nativity

Abbreviations: CES-D, Center for Epidemiologic Studies Depression; CIDI, Composite Diagnostics Interview; GHQ, General Health Questionnaire; HIV, human immunodeficiency virus; HSCL, Hopkins Symptoms Checklist; PANAS, Positive Affect Negative Affect Schedule; PTSD, posttraumatic stress disorder; QOL, quality of life; SCL-90-R, Revised Symptoms Checklist 90; SF 36, Short Form 36; UAI, unprotected anal intercourse; WHO, World Health Organization.

[a] For scales with numbers (e.g., GHQ 12), the numerals refer to the number of items on the questionnaire.

related to increased risk of alcohol or tobacco use (41, 55, 56, 58, 82, 98, 104, 105). One study found positive associations between discrimination and marijuana, inhalants, crack/cocaine, or other drug use (96). Another study reported positive associations between discrimination and use of illicit drugs and prescription medications (98). Three articles found that discrimination was associated with increased human immunodeficiency virus risk behaviors (e.g., unprotected anal intercourse) among gay Asian-American men (53, 71, 103).

There were mixed findings for preventive behaviors (88, 94, 95, 97, 101, 102). One study reported that discrimination was associated with decreased likelihood of preventive health behaviors, including cholesterol testing, foot examination, hemoglobin (HbA1c) testing, and a flu shot, but the same study found no association between discrimination and aspirin use or prostate-specific antigen testing (102). Another study discovered an association between discrimination and decreased likelihood of endoscopy and mammography screening, but only among women (97). Two studies found that utilization of mental health services was negatively associated with discrimination, although one of the studies found that discrimination was associated with increased use of informal mental health services (95, 101).

Several studies investigated whether the effects of discrimination on health were tempered by protective factors. For instance, the associations between discrimination and health are buffered by social support and education (52, 66, 71, 106).

Ethnic identity was also evaluated as a moderator of discrimination. Six articles found that a strong identity buffers the associations between discrimination and health outcomes (41, 53, 62, 65, 82, 98). In contrast, 4 articles indicated that a strong identity exacerbates this association (43, 65, 74, 80). Four articles found that ethnic identity at times buffered discrimination, while at other times it exacerbated discrimination (51, 53, 65, 72). Another article indicated that high ethnic identification exacerbated the effect of discrimination on depressive affect among the unemployed but buffered the effect among those with poor English language skills (51). Chae and Yoshikawa (53) measured racial identity in 3 ways: as group membership, collective self-esteem, and preference for nonwhite partners. The interaction between identity and discrimination on unprotected anal intercourse varied by the measure of identity. Finally, other studies find that the potential amplification or buffering of identity varies by age and generation (72). Noh and Kaspar (66) have raised questions, worthy of continued study, about whether the buffering of discrimination varies by culture or other dimensions of social context.

Immigration-related factors may also moderate discrimination. One study found that the relation between discrimination and substance use was stronger among immigrants compared with nonimmigrants (98). Another reported that the association between racial discrimination and health outcomes strengthened with increasing years in the United States (92). One study did not find any interactions between discrimination and percentage of life in the United States (107). Yet another study reported that the interaction between discrimination and years in the United States applied only for language discrimination but not racial discrimination (75). Acculturative stress (e.g., social isolation, socioeconomic adjustment) appeared to moderate the effect of discrimination and coping response in one study (66).

As indicated by Table 3, many Asian subgroups have been included. Most articles focused on Chinese and Filipinos and, to a lesser extent, Vietnamese and Koreans. These populations generally follow the distribution of Asian populations in the United States. In the year 2000, the 5 largest Asian and Pacific Islander populations were Chinese (24%), followed by Filipinos (18%), Asian Indians (16%), Vietnamese (11%), and Koreans (11%) (108).

Yet, we could find only 2 studies that focused on discrimination and health among South Asians in the United States, a surprise since Asian Indians are the third largest subgroup. Both studies investigated racial teasing and eating disorders among women (99, 100). One additional study assessed discriminatory distress among 15 South Asian students, but it did not provide a clear connection to a health outcome (42). Population-based studies of discrimination among South Asians have emerged in the United Kingdom. The survey by Bhui et al. (46) was one of the few to distinguish among South Asians in the United Kingdom (Indian, Pakistani, and Bangladeshi).

Similarly, no articles have systematically examined Pacific Islanders in the United States, although several studies of Pacific Islanders have been conducted in New Zealand (55, 56, 68).

Finally, the studies represent diverse geographic areas in both the United States and other countries. There do not appear to be any systematic differences in findings between studies using local populations and those using national samples. However, the reporting of discrimination appears to vary by location. For instance, one study indicated that reports of discrimination among Chinese in Los Angeles differed by neighborhood (54), while another study found that reports of discrimination and the associations between discrimination and health varied between Filipinos living in San Francisco and those living in Honolulu (106).

Self-reported discrimination and health: pathways

Several mechanisms may explain the association between self-reported discrimination and illness, the predominant being stress (65, 109, 110). Stressors can be defined as ''conditions of threat, demands, or structural constrains that … call into question the operating integrity of the organism'' (111, p. 177). Stressors are appraised and counterbalanced by coping resources. Illness results when stressors overcome these resources (112). Further, stressors activate the sympathetic and parasympathetic nervous system and rally the body's defenses, including mobilization of the immune, cardiovascular, and other body systems. According to McEwen (113), chronic exposure to stress may lead to the dysregulation of the body's homeostasis and the accumulation of *allostatic load*, the ''wear and tear'' of body systems due to stress.

Because stressors activate numerous body systems, it is not surprising that discrimination is related to a variety of

health outcomes. Hence, the diversity of outcomes investigated in the literature—ranging from depression (66) to cardiovascular problems (87) to obesity (92)—is not a random assortment of illnesses but an assortment all tied to the stress pathway. Moreover, it implies that studies focusing on just one health outcome may understate the potential problems related to racial discrimination (114, 115). One limitation of the literature on Asian Americans, however, is that nearly all studies have involved outcomes that are based on self-reports. Investigations of discrimination among African Americans have included objectively measured outcomes, including blood pressure, coronary calcification, and mortality (116–118). Asian-American studies could include similarly objective outcomes.

Individuals may activate coping resources to mitigate discrimination (79, 110). Accordingly, 2 streams of research have emerged. The first stream studies how experiences of interpersonal discrimination may increase the risk of engaging in maladaptive behaviors as a way to manage stress (119, 120). Evidence for this perspective has been found for smoking and alcohol disorders among Asian Americans (41, 98, 121). Self-reported racial discrimination also was associated with higher odds of engaging in human immunodeficiency virus risk behavior among gay Asian men (53, 71).

The second stream investigates how coping resources, such as social support and ethnic identity, may buffer discrimination. The association between discrimination and health problems was weaker for individuals with high levels of social support (66, 71, 106). As noted earlier, although most studies find that ethnic identity buffers discrimination (41, 53, 62, 82, 98), some studies show the opposite effect (43, 53, 65, 74). A possible reason for this inconsistency may be related to the operationalization of racial identity (53). Further, the associations between identity and discrimination vary by culture, generation, and age (65, 72). Taken together, this suggests that context matters when considering coping and discrimination (66, 106).

Stress is not the only pathway whereby discrimination may influence health. Direct pathways include mortality and morbidity from hate crimes. Indirect pathways include mediation through socioeconomic position, neighborhoods, or social evaluation (8, 122). For instance, discrimination may diminish educational achievement or the accumulation of wealth. Discrimination may also contribute to exposures to unsafe environments, as when residential segregation leads to exposure to air pollution (123). In addition, social evaluation and symbolic interaction theories suggest that individuals derive their self-concept from the social values attached to their membership in groups and their experiences within these groups (124–126). Experiencing discrimination on the basis of racial group membership may be associated with poorer self-evaluation and subsequent poorer mental health. Alvarez and colleagues (109, 127) find that racial socialization (information about race from society) and identity schemas (perceptions of oneself as a racial being) predict the reporting of discrimination among Asian-American students, which in turn may increase the risk of mental health problems.

These alternative pathways remain understudied among Asian Americans. For example, although it is intuitively appealing that socioeconomic position mediates discrimination, we are aware of no studies that have directly investigated this phenomenon. In fact, most studies find an association between discrimination and health even after controlling for socioeconomic position. Moreover, occupational discrimination may operate independently of more general experiences of discrimination (128). Several other studies among African Americans and among Japanese Brazilians have found that socioeconomic position moderates the association between discrimination and health (52, 129). Taken together, these findings suggest that discrimination and socioeconomic position may both influence health independently and may also amplify the effects of one with the other. Future studies should evaluate these propositions more fully.

Measures of self-reported discrimination

A number of tools assess self-reported racial/ethnic discrimination among Asian Americans. Some studies use individual items or single items, but these measures tend to be unreliable and may understate the extent of discrimination (54, 130). Both of these problems would tend to bias associations between self-reported discrimination and health toward the null (i.e., type II error).

No multiitem scale predominates, but the Everyday Discrimination Scale is the one most commonly used in large population-based studies (131). Developed initially to examine routine and mundane experiences of discrimination among African Americans, the Everyday Discrimination Scale has been adapted for studies of Filipino Americans, Chinese Americans, Vietnamese Americans, and other Asian Americans (62, 83). Items focus on general experiences with discrimination, such as being harassed, being treated with less respect, and receiving poorer service in restaurants. This scale has been associated with health problems among Asian Americans (62, 83, 87, 131).

Another instrument, the General Ethnic Discrimination (GED) Scale, is designed to be applicable to diverse populations, including Asian Americans (58). The GED Scale was based on the Schedule of Racist Events, with one change: The phrase, ''because you are Black,'' in the Schedule of Racist Events was changed to ''because of your race/ethnic group'' in the GED Scale. We are aware of only one study using this scale (81) among Asian Americans.

These general population instruments may be insufficient. Qualitative studies suggest that Asian Americans face many of the same issues as other ethnic groups do, but Asian Americans also face unique types of discrimination (35). For example, a study using key-informant interviews found that Hmong adults experience the same types of discrimination faced by African Americans, such as discrimination due to police mistreatment and verbal harassment. However, this study also found that Hmong adults encountered discrimination based on nativity and English proficiency (132). Another qualitative study of Japanese-American youth suggested that language discrimination was encountered as commonly as racial discrimination (133). Neither the GED Scale nor the Everyday Discrimination Scale includes questions on discrimination based on language or nativity.

Hence, these instruments may underreport the experiences of Asian Americans.

Instruments developed for Asian Americans, not surprisingly, do include questions on nativity and language discrimination, as well as other issues, such as being a model minority. For instance, the Asian-American Racism-related Stress Inventory (AARRSI), developed by Liang et al., includes such items as the following: ''You are asked where you are really from'' (nativism) and ''you are told that 'you speak English so well''' (language proficiency) (134, p. 107). Some additional items are noteworthy. One item is related to being seen as a model minority, as in being told, ''There is a gene that makes Asians smart'' (134, p. 107). A second item relates to stereotypes about passivity, such as, ''You are told Asians have assertiveness problems.'' The most poignant was one item asked of Asian-American Vietnam veterans in another study: ''[you were] pointed out as an example of what the enemy looked like'' (60, p. 509).

Self-report measures of discrimination face several limitations, including response biases. Some biases may prompt overreporting, for instance, if respondents experience psychological paranoia or some trait negativity (135). In addition, individuals may misclassify behavior that is rude, but not related to race, as being racially motivated. Response biases may also understate experiences with discrimination. One such bias may be social desirability, the tendency to present oneself favorably. Social desirability may also be related to the inclination among Asian Americans to avoid ''losing face'' or shaming oneself or their families (136, 137). Asian respondents who score high on social desirability are less likely to report racial discrimination (83), a finding also seen in black and Latino populations (130). In addition, individuals may avoid reporting racism because they are challenged by others to prove that discrimination exists (83, 128, 138, 139). Finally, some experiences with discrimination may be unrecognized or simply forgotten.

Institutional discrimination

Most studies have focused on self-reported discrimination, but other dimensions and levels of discrimination should be acknowledged. At an intermediate level, the phenomenon of being the ''token'' minority appears to be stressful for African Americans (140). At a more macro level, residential segregation is also associated with health problems among African Americans (141, 142). Among African Americans, segregation is associated with increasing risk for adult and infant mortality (143).

Less research has focused on Asian Americans. However, an important study by Morello-Frosch and Jesdale (123) found that segregation among Asian Americans was associated with increased risk of exposure to carcinogenic agents. Additionally, Pacific Islanders and Asian Americans are more likely than other racial groups to reside in counties that violate the Environmental Protection Agency's safety standards for small (<2.5 μm) air particles (144).

The iceberg analogy suggests that multiple levels of discrimination operate simultaneously. With the development of multileveling modeling techniques, researchers may design studies that examine both individual and institutional discrimination. One of the first studies to use this approach examined 2 levels among Chinese Americans (54). Individual-level discrimination was measured with self-reported discrimination. Institutional-level discrimination was assessed with residential segregation and redlining (the practice of mortgage-lending discrimination). A few other studies have subsequently emerged that use a similar approach among other populations (121, 145). This multilevel approach may be an important path for future research (146).

Another novel approach has been developed by Yip (147), who used PalmPilot devices to prompt Chinese-American students to report the racial composition of their surroundings, their feelings of ethnic identity, and their mental health. These prompts occurred at random times during the day. Yip found that ethnic identity and mental health varied as a function of the racial composition of where the subjects were located. Her method could be used to examine how the microcontext is related to the reporting of discrimination and health outcomes.

DISCUSSION AND FUTURE DIRECTIONS

Data from public opinion polls, field studies, and surveys of Asian Americans themselves converge on the finding that Asian Americans continue to experience discrimination. Further, our review of 62 studies shows that Asian Americans who report discrimination are more likely than not to also experience morbidity. Most research has focused on mental health, and the majority of these studies find associations in the hypothesized direction. Although less consistent, the literature also finds that reports of discrimination are related to physical illness and health behaviors.

The discrimination literature has expanded our understanding of population health in 2 major ways. First, discrimination may itself be a key risk factor for illness. Second, discrimination prompts a reinterpretation of existing risk factors. For example, studies often find that immigrants are healthier than nonimmigrants but, further, that this ''immigrant advantage'' erodes with time in the United States. This erosion effect is often attributed to acculturation, or cultural change (148). Yet, the literature on discrimination suggests that another interpretation is possible: With increasing years in the United States comes increasing exposure to discrimination. As suggested by Takeuchi et al., ''Changing cultural patterns of ethnic minority groups are inextricably linked to the structural limitations they encounter as the result of discrimination'' (149, p. 560). Consistent with this idea, studies find that the association between discrimination and health strengthens with years in the United States among Asian immigrants (75, 92), as well as among Latino and black immigrants (150). Hence, discrimination may ''weather'' (151) away the immigrant health advantage.

This research has also emphasized within-group heterogeneity, a key characteristic of the Asian population. This heterogeneity is based on not only culture but also socioeconomic position and experiences with discrimination. Estimates that aggregate across Asian populations may lose information about high-risk groups and lead to missed

opportunities for intervention. Hence, studies should oversample Asian subgroups and disaggregate their data.

Within the United States, most studies of discrimination have focused on Chinese, Filipino, Vietnamese, and Korean populations. Little is known about other populations, such as South Asians and Pacific Islanders. Studies that involve Southeast Asians in the United States tend to have small samples; all but one study had samples of less than 250 participants. Hence, future research should focus on these populations and strive for large and probability-based samples.

Future scholarship should also build the theoretical foundation for understanding heterogeneity. Although it is generally acknowledged that Asian subgroups should be disaggregated, the literature should provide greater guidance on how groups may differ. For instance, theories suggesting that skin color is a primary determinant of racial bias may lead to the hypothesis that, on average, Asian groups with darker skin (e.g., Asian Indians) may experience greater discrimination than those with lighter skin (e.g., Chinese). Alternatively, theories related to group contact, as with the psychological principle that *familiarity breeds liking* (152), inform the hypothesis that less common groups (e.g., Thai and Indonesians) would encounter more discrimination than more common groups (e.g., Chinese and Asian Indians). Another perspective from the *group threat hypothesis* (153) suggests that Asian groups, once over a certain threshold in terms of proportional population (i.e., above a tipping point), would be seen as a threat and subsequently encounter discrimination. Finally, the phenomenon, *they all look alike* (154–156), suggests that non-Asians are unable to distinguish among Asian subgroups and, hence, subgroups would encounter equal levels of discrimination.

Research on Asians also suggests that the broader literature on discrimination may be expanded to incorporate additional domains (17). Language, accent, nativity, and positive stereotypes (i.e., the model minority) are important dimensions whereby Asian Americans experience discrimination (71, 101, 134, 157). Although these factors are often omitted from the general literature on discrimination, they may be relevant to many other populations.

These conceptual issues are also related to measurement. A primary concern is the lack of standard measures of discrimination, which may account for some of the discrepant findings in the literature. Existing scales suffer from 2 interrelated problems.

The first problem is that scales initially developed for African Americans and subsequently adapted for more general populations may not adequately measure the Asian-American experience. For instance, the Everyday Discrimination Scale, the Experiences of Discrimination Scale, and the General Ethnic Discrimination Scale do not ask about discrimination based on one's accent, being cast as a model minority, citizenship, or being assumed to be a foreigner (58, 130, 131). Failure to measure these issues would likely underestimate the prevalence of self-reported discrimination and possibly lead to type II error (failure to detect associations between discrimination and health problems among Asian Americans if these associations were in fact true).

The second is that some scales are too narrowly focused on one population to be applicable to multiple populations. For instance, the Asian-American Race-related Stress Inventory (134), developed specifically for Asian Americans, appears to be a promising tool for examining the heterogeneity within Asian-American populations. Yet, it is too focused to be of use for non-Asian populations and, hence, not suitable for comparative research.

Future scales can balance these 2 problems by amending general population scales to include questions on discrimination based on accent/language, citizenship, and positive stereotypes. Respondents of all backgrounds could answer these questions about language and citizenship, even if it is expected that few would encounter such discrimination. Similarly, all groups can answer questions about encountering discrimination based on so-called ''positive'' stereotypes. For instance, questionnaires might develop a broad question asking, ''People assume that I am better at sports, math, or some other activity simply because of my race/ethnicity.''

Adding these dimensions will provide new directions for research. For instance, some have speculated that positive stereotypes may cause stress and diminish mental health among Asian Americans (158). Indirect evidence comes from research on ''stereotype threat,'' which refers to minorities fearing to act in ways that confirm a stereotype. The stereotype threat of being a model minority may at times impair (159), and at other times promote (160), cognitive performance among Asian-American female students. Shih et al. (161) find that subtly presented positive stereotypes enhance academic performance, while blatantly presented stereotypes diminish academic performance among Asian-Americans students. This suggests the possibility that blatantly presented *positive* stereotypes may influence health through both stress and educational disadvantage.

Another limitation is that nearly all studies of Asian Americans and discrimination are based on cross-sectional data. One exception was a study of Asian high school students that found that discrimination was associated with decreased mental health over 3 years (43). Other studies with African Americans have also found that reports of discrimination are associated prospectively with illness (116, 118, 162, 163). In addition, some studies have found that, while discrimination prospectively predicts illness, illness does not predict the reporting of racial discrimination (164, 165). Nonetheless, the reliance on cross-sectional designs prevents the evaluation of causal relations and the study of the potential cumulative adverse effects of self-reported discrimination. Hence, there is a serious need for longitudinal studies of Asian Americans.

Finally, there is a shortage of studies that have examined discrimination at the base of the ''iceberg'' and at multiple levels. Self-reported experiences with discrimination constitute one important level of analysis, but segregation, redlining, and other forms of structural discrimination are equally important (54, 141, 146). Future research should develop new methods to assess structural discrimination and to study discrimination at multiple levels. These multiple levels include variation based on geographic scale (e.g., neighborhoods, cities), stage within the life course (e.g.,

youth, younger adulthood, older adulthood), and across different contexts (e.g., work, school). Moreover, although we focus on racial discrimination, future research should also examine discrimination based on sexual orientation, gender, and social class (71, 166).

In closing, the literature suggests that Asian Americans appear to encounter racial discrimination in the present day and that these encounters may be related to a variety of health problems. Most of these studies focus on self-reported discrimination. Research on discrimination at other ecologic levels, however, remains a noticeable gap. Future studies should also focus on factors that may reduce discrimination or its impact. This could include individual-level factors, such as participation on civil rights activities, or macro-level factors, such as civil rights legislation. Such studies would greatly extend the current body of research and provide ways to improve the public health.

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