

ETHNICITY AND HEALTH

A systematic review of empirical research on self-reported racism and health

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This paper reviews 138 empirical quantitative population-based studies of self-reported racism and health. These studies show an association between self-reported racism and ill health for oppressed racial groups after adjustment for a range of confounders. The strongest and most consistent findings are for negative mental health outcomes and health-related behaviours, with weaker associations existing for positive mental health outcomes, self-assessed health status, and physical health outcomes. Most studies in this emerging field have been published in the past 5 years and have been limited by a dearth of cohort studies, a lack of psychometrically validated exposure instruments, poor conceptualization and definition of racism, conflation of racism with stress, and debate about the aetiologically relevant period for self-reported racism. Future research should examine the psychometric validity of racism instruments and include these instruments, along with objectively measured health outcomes, in existing large-scale survey vehicles as well as longitudinal studies and studies involving children. There is also a need to gain a better understanding of the perception, attribution, and reporting of racism, to investigate the pathways via which self-reported racism affects health, the interplay between mental and physical health outcomes, and exposure to intra-racial, internalized, and systemic racism. Ensuring the quality of studies in this field will allow future research to reveal the complex role that racism plays as a determinant of population health.

Keywords Race, ethnic groups, racism, discrimination, stress, review

In recent years, there has been an emerging interest in the epidemiological study of racism and health. The manifestations of racism vary considerably across time and place but in general ensue from societal systems that produce an unequal distribution of power (and hence resources) in societies based on the notion of 'race',¹ where race is a social rather than a biological construct related to the notion of essentialized innate phenotypical, ancestral, and/or cultural difference. This review considers only self-reported perceptions/experiences of racism (hereafter referred to as 'self-reported racism'). Owing to its pervasive nature in contemporary societies racism is frequently not perceptible to individuals or, if perceived, may not always be reported.² Hence, it should be clear that in focusing on self-reported racism this paper considers only a very specific subset of this multifarious phenomenon and does

not attempt a comprehensive assessment of the impact of racism on population health.

A handful of previous reviews have attempted to provide an overview of certain aspects of this emerging area of epidemiological research. The first article to consider the health impact of racism (along with sexism and social class) was published by Krieger *et al.*³ in 1993. This was followed, in 1999, by a review, also by Krieger, of 15 studies examining ethnic and/or racial discrimination and health⁴ and, in 2000, by a review of 13 studies examining racism and mental health for African Americans by Williams *et al.*⁵ There were also three reviews published in 2003, with Wyatt *et al.*⁶ summarizing 19 studies relating racism to cardiovascular disease for African Americans, Brondolo *et al.*⁷ discussing studies relating racism to blood pressure (six studies) and cardiovascular reactivity (11 studies), and Williams *et al.*⁸ reviewing 53 population-based empirical studies of ethnic and/or racial discrimination, which were published from 1998 onwards and related to various health outcomes.

Drawing in particular on the most recent review by Williams *et al.*,⁸ this paper updates and expands upon these earlier reviews by examining the key characteristics of epidemiological

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studies of self-reported racism and health—where and when studies have been conducted, the race, age and gender of study populations, study designs, sample sizes, and data sources used. This review also aims to describe how self-reported racism is defined in the existing literature, how this exposure is measured in terms of method of administration, content and time frames of exposure, targets and perpetrators of racism, and settings in which racism is experienced as well as the variation in reporting of racism by various socio-demographic factors. The nature of associations found between self-reported racism and health is detailed for a range of health outcomes across various study and exposure characteristics along with identified effect modifiers and mediators of these associations. Possible future directions for research in this area are also presented.

Methods

A search of the PubMed, PsychINFO, and Sociological Abstracts databases was conducted using the terms: *racism*, *racial discrimination*, *race AND discrimination*, and *perceived discrimination* from the earliest records in these databases until the end of 2004. The inclusion criteria for this review required studies to: (i) be empirical; (ii) be quantitative; (iii) include a direct measure of self-reported or experienced racism as an exposure; (iv) include a direct measure of a health-related factor as an outcome; and (v) not be theses/treatises or conference proceedings (due to the difficulty of obtaining these documents). A sequential process of examining the title, abstract and main text of each article or book (chapter) was undertaken, with exclusion of documents occurring at each stage. The bibliographies of all articles meeting the inclusion criteria, as well as those of previous review articles, were also searched for further relevant studies, which were in turn acquired and checked against the inclusion criteria above. The study of racism in medical/health care is a fast-growing body of research in its own right⁹ and there is also existing research on the intersection of racism with other forms of oppressions¹⁰ [i.e. (hetero)sexism, classism, etc.]. However, reviewing these topics along with self-reported racism is beyond the scope of this paper and, hence, these issues are not addressed below.

Data pertaining to studies meeting the inclusion criteria were entered into a spreadsheet and analysed using basic descriptive statistics in Stata 8.0 for Windows (spreadsheet available upon request from the author). A formal meta-analysis was not conducted owing to both the heterogeneity of studies in terms of design, study populations, exposure and outcome measures and because only a small number of studies provided odds ratios (ORs) or similar effect sizes (see below), which could be weighted by study sample size into a combined estimate. Furthermore, publication bias was not assessed in this review.

Results

A total of 138 separate studies, with several studies published in the same paper, met the inclusion criteria for this review.^{11–146} Table 1 details the key characteristics of these studies [data on socioeconomic position (SEP) could not be included in Tables 1 and 2 owing to inconsistent stratification by and conceptualization/measurement of SEP in these 138 studies].^{147,148} Most of the 138 studies were published in the last 5 years (65%), used a cross-sectional study design (76%) with

convenience (i.e. non-representative) samples (59%) of between 100 and 1000 adults (59%) and were conducted in the US (86%) with African Americans (69%).

Several large surveys were utilized in a number of studies in this review, with studies utilizing the same dataset focusing on different exposures, outcomes, and/or sub-samples. The surveys utilized were the National Survey of Black Americans,^{21,24,26,40,74,75,131} Detroit Area Study,^{28,29,74,106} Fourth National Survey of Ethnic Minorities,^{20,102} General Social Survey,^{13,40,143} Mexican American Prevalences and Services Survey in California,^{50,77} San Francisco Muni Health and Safety,^{17,18} MIDUS,^{22,73} and CARDIA surveys.^{14,110}

Defining racism

Only a quarter of the studies (34 of the 138) in this review offered a definition of racism.^{13,19,20,23,24,29,37–40,43–45,49,50,53,62,64,65,69,74,77,88,99,105,108,112,119,125,131,134,139,143} Many of these definitions focused on the detrimental effects of racism (i.e. for non-White racial groups)^{13,23,24,37,38,43–45,50,53,62,64,77,108,112,125,139} with only a few also highlighting the privileges accrued through racism for Whites.^{19,39,40,65,88} Similarly, racism was generally attributed to an ideology of inferiority^{23,88,144} or superiority^{29,69,105,112} rather than both.⁴⁰ Notably, only about half of these definitions recognized systemic racism (i.e. racism occurring through societal organizations, institutions, laws, policies, practices, etc.) as well as interpersonal racism (i.e. racist interactions between people).^{13,19,20,23,24,40,43,50,64,69,74,77,88,105,112,125,139} Furthermore, several studies defined racism as differential treatment by race^{24,29,99,143} without specifying for which racial groups this treatment was positive or negative and, hence, in which instances racism differed from, for example, affirmative action.

Exposure measurement

A total of 152 different instruments/scales were used in the 133 studies in this review, which included a measure of self-reported racism (five experimental studies utilized racist stimuli instead of assessing self-reported racism).^{33,47,54,97,139} There was considerable variation in exposure measurement across these instruments, in terms of both content and length. Of these 152 measures, 111 were between 1 and 9 items in length (with 28 of these consisting of only a single item) and 48 were between 10 and 128 items in length. Self-reported racism was measured across a range of conceptual dimensions including experiences of discrimination (EOD) (i.e. racist behaviours/actions)^{20,39,68} such as racist attacks,^{16,102,146} harassment,³⁸ exclusion,^{38,61,67,86,103} life events (e.g. being fired),^{3,22,28,29,45,106,124} and everyday discrimination/daily hassles (e.g. being refused service),^{22,25,27–30,72,73,78,82,106,115,123} as well as racist affect (emotions)³⁹ and stereotypes/beliefs.^{13,39,40,86,149,150} With the exception of two instruments^{69,153} used in seven studies,^{64,68,69,80,88,112,140} self-reported racism in these studies was assessed without collecting information on the race of the perpetrator.

Racism was also conceptualized by a number of studies in this review as a form of stress.^{11,22,30,33,37,39,48,52,60,62,64,65,78,81,82,84,88,91,101,103,110,113,120,124,126,137,144,154} Self-reported stress associated with self-reported racism was assessed

Table 1 Characteristics of 138 empirical quantitative studies of self-reported racism and health

	No. of studies	% of total studies
Year of publication		
1980–84	1	1
1985–89	5	4
1990–94	7	5
1995–99	36	26
2000–04	89	65
Study design		
Cross-sectional	105	76
Cohort	16	12
Experimental	12	9
Case-control	5	4
Sampling procedure		
Representative/Probability	57	41
Convenience	81	59
Sample size		
$n < 100$	20	14
$100 \leq n < 200$	34	25
$200 \leq n < 1000$	47	34
$n \geq 1000$	37	27
Region of study		
US	118	86
Europe	12	9
Canada	3	2
Australia/NZ	2	1
Barbados	2	1
Dominica	1	1
Study populations		
Ethnic/racial group ^a		
African American	95	69
White	36	26
Asian	27	20
Latino/a	26	19
Immigrants/refugees	15	11
Indigenous	5	4
Age ^a		
Adults	126	91
Children/adolescents	21	15
College students	15	11
Elderly	2	1
Gender (in studies of adults)		
Men and women	97	70
Men only	8	6
Women only	33	24
Exposure instruments utilized^{b,c}		
Experiences of discrimination ^{14,15}	13	9
Everyday discrimination scale ^{29,149}	12	9
Schedule of racist events ⁴⁵	9	7

Table 1 Continued

	No. of studies	% of total studies
Nadanolitization scale ¹⁵²	7	5
Racism and life experience scales ^{155,179}	7	5
Perceived racism scale ¹⁵³	6	4
Major discrimination scale ²⁹	4	3
Perceived discrimination scale ⁵⁰	3	2
Index of race-related stress ^{154,180}	3	2
Exposure administration^b		
Self-administered	68	49
Interviewer-administered	65	47
Exposure time frame^{a,b}		
None	76	55
Past year or less	30	22
>1 year \leq 5 years	5	4
Ever/lifetime	32	23
Length of exposure instruments utilized^a		
\leq 9 items	111	80
\geq 10 items	48	33

Percentages may not add to 100% due to rounding.

^a Categories are not mutually exclusive in relation to the unit of analysis (i.e. studies).

^b Categories in this section are not complete.

^c Includes only those instruments used in two or more studies.

in 14 studies included in this review. Of the 10 studies measuring self-reported racism and racism-related stress as two separate constructs, three failed to differentiate between these measures in their analysis.^{55,86,107} The remaining seven studies^{36,45,91,93,98,110} allow a comparison between self-reported racism and racism-related stress (i.e. the experience of racism as a form of stress) in terms of associations with health outcomes as detailed below.

Generally, the studies in this review assessed self-reported experiences of inter-personal racism and/or systemic racism, without explicitly indicating which of these levels of racism were being examined. Only a small number of studies explicitly assessed systemic racism,^{19,42,66,71,74,106,126,128,137,138,153,155,156} internalized racism (i.e. the incorporation of racist attitudes, beliefs, or ideologies into an individual's worldview),^{13,111,118,127,132–134,136,151,152} or reactions and responses to racism.^{14,15,17,61,64,83} This review included 15 studies that specifically assessed self-reported racism for a respondent's entire ethnic/racial group.^{13,26,48,71,74,88,90,101,102,105,111,122,131,132,137}

A number of exposure instruments examined EOD, which were not specifically attributed to race but, rather, measured generic discrimination without attributing to, or differentiating between, discrimination due to race, gender, sexuality, etc. during measurement and/or analysis. Instruments such as the everyday discrimination scale (EDS) were used as a non-specific measure of discrimination^{8,29,30,73,106,115} as was the Williams *et al.* 3-item measure of major discrimination^{28,29,106} along with several other measures.^{31,57,89}

Of the 133 studies that included a measure of self-reported racism, 65 studies used an interviewer-administered measure

with a further 68 studies using self administration. There were also six studies that assessed reported racism for family and friends of respondents.^{24,26,48,50,61,79} Exposure to racism was assessed across a range of settings including at work (reported as assessed in 52 studies), from goods/service providers (38 studies), in courts of law/from police (33), when seeking employment (31), in education (30), housing (22), health care (21), in public (16), from neighbours (12), friends (10), government agencies (7), and at home (4).

About a quarter (34) of the 138 studies used versions of three instruments as exposure measures. These were the EDS¹⁴⁹ used in 12 studies,^{22,25,27–30,73,78,82,106,115,123} a set of items developed by Krieger³³ [now known, in a slightly varied form as the EOD and referred to below as such] used in 13 studies,^{14,15,17,23,51,53,62,84,109,110,112,114,116} and the Schedule of Racist Events (SREs)⁴⁵ used in nine studies.^{36,44,91,93,98,104,107,120} These instruments have shown good internal reliability within a single study for both the EOD¹⁴ and the SRE,¹²⁰ and in five studies for the EDS.^{27,30,78,82,123} Furthermore, the EDS has shown good construct validity in a sample of African American adolescents,¹⁵⁷ the EOD has been psychometrically validated in a sample of African American, Latino, and White participants, showing high scale reliability and validity including test–retest reliability,² and the SRE has been found to have good construct and concurrent validity.⁴⁵ Other exposure measures that have been psychometrically validated include the Racism and Life Experiences Scale,^{155,157} the Perceived Racism Scale,¹⁵⁸ and the Perceived Ethnic Discrimination Questionnaire.^{134,159}

By their nature, 20 of the studies in this review could not include a time frame associated with exposure measurement as these studies assessed stereotypes/beliefs or used experimental interventions.^{3,33,40,41,43,47,54,90,94,95,97,101,117,126,131–133,135,137,139} However, of the remaining 118 studies in which it was possible to specify a time frame, this occurred in only 42 studies. Of these 42 studies, 10 measured both past year and lifetime,^{36,44,45,91,93,98,109,111,146} or past 6 month,¹⁴⁵ self-reported racism. A further nine studies measured self-reported racism over the past year^{14,20,49,57,72,78,100,102,107} and 20 studies measured self-reported racism over a lifetime.^{14,15,17–19,22,25,29,34,52,56,61,71,80,81,99,105,106,110,113,123} Self-reported racism was assessed over the past 3,^{51,53,62} 2,³⁸ and 5 years⁸⁹ as well as over the previous 6,³⁷ 3,^{55,134} and 1 month,^{24,26,40,70,75} during childhood,^{12,48} adulthood,^{12,48} since arriving in a particular country,^{35,65} or during a specific pregnancy.^{76,109,114}

Socio-demographic variations in self-reported racism

The studies included in this review do not provide representative data on the prevalence of racism and, as such, data on this topic are not presented here. However, at present little is known about how self-reported racism varies by socio-demographic characteristics. Hence, this section presents available information from this review on such variation. The most consistent finding from the studies included in this review is that the prevalence of self-reported racism varies strongly and consistently by race, with non-White respondents experiencing more racism than White respondents.^{11,14,15,22,23,27–30,37,51,66,82,89,106,108,110,114,115,}

^{123,129,134,143} Increased reporting of racism was generally associated with higher SEP^{13,17–19,23,28,29,48} and also, in a few studies, with lower SEP,^{28,49,57} with a number of studies finding no variation in self-reported racism by income^{37,49,51,91,115} or education.^{37,51,91,115} Many studies have found that self-reported racism varies by gender with males reported a higher prevalence.^{16,34,35,44,52,92,103,115,160} In some studies this higher reporting by males occurred only in specific settings such as at work,¹⁴ getting a job,⁵¹ in education,²² from the police,^{22,51,87} legal system,^{87,160} in money and finances,^{22,160} in seeking medical care,¹⁶⁰ or being threatened or harassed.^{134,160} However, a few studies have found that females report more racist experiences than males,^{57,104,134,144} which in two studies occurred in the specific setting of service provision.^{22,60} Several studies have found no variation in self-reported racism by sex/gender.^{18,37,130}

The prevalence of self-reported racism was found to vary inconsistently with age, with some studies in this review finding more self-reported racism for older people,^{68,83,112} other studies finding the opposite,^{13,15,49,51} and a few studies finding no variation in self-reported racism with age.^{17,91,160} One study found that reports of discrimination (not specifically attributed to race) increased slightly with age for African Americans but decreased with age for European Americans.¹¹⁵

A high level of racial centrality (i.e. the extent to which a person defines himself/herself with regard to race) has also been associated with increased reporting of racism,⁷² but, as with the socio-demographic variations in self-reported racism presented above, this association is complex and, at present, poorly understood. In one study, higher levels of acculturation were associated with increased reporting of racism for Latino/a respondents born or educated in Mexico, but acculturation was also associated with decreased reporting of racism for Latino/a respondents born or educated in the US.⁷⁷ Self-reported racism was also found to increase with years spent in the US and decreased fluency in English among recent East Asian migrants⁹⁰ and, in one study, reported racism tended to increase for African Americans along with an increasing belief that other groups hold negative attitudes towards them.⁷²

Associations between self-reported racism and health-related outcomes

Table 2 shows the associations found between self-reported racism and health-related outcomes in the 138 studies included in this review. These outcomes, grouped into broad categories, are shown alongside information on the extent to which associations between these outcomes and self-reported racism were statistically significant and in which direction. Most of these studies adjusted for a range of confounders, which are not shown in Table 2. Confounders adjusted for in three or more studies were socioeconomic and demographic factors such as age (adjusted for in 64 studies), education (55 studies), sex/gender (50), income/poverty (48), marital/partner status (25), racial/ethnic group (23), and employment/occupation (21). Health risk factors adjusted for in three or more studies were stress (17), body mass index (12), smoking (10), social support (10), self-esteem (9), nativity (7), and acculturation (6).

Overall, 54% of health-related outcomes examined were significantly associated with self-reported racism (either

Table 2 Findings of 138 empirical quantitative studies of self-reported racism and health ($P < 0.05$ unless otherwise indicated)

	Positive association ^a	Negative association ^b	No association ^c	Total
Negative mental health outcomes	148(8) ^d (72%)	1 (0%)	57 (28%)	206 (8) ^d
Psychological/psychiatric/emotional distress	40(3)	1	21	62 (3)
Depression/depressive symptoms	39(2)	0	13	52 (2)
Obsessive-compulsive symptoms	5	0	0	5
Somatization	5	0	0	5
Anxiety	15	0	7	22
Stress	13	0	6	19
Negative effect	9	0	5	14
Miscellaneous outcomes (examined in <3 studies)	22(3)	0	5	27 (3)
Positive mental health outcomes	9 (8%)	52 (7) ^d (48%)	47 (44%)	108 (7) ^d
Life/personal/patient/work satisfaction/quality	1	27 (6)	16	44 (6)
Self-esteem	4	9	13	26
General mental health	4	10(1)	11	25 (1)
Miscellaneous outcomes (examined in <3 studies)	0	6	7	13
Negative physical health outcomes	61 (2) ^d (36%)	2 (1%)	108 (63%)	171 (2) ^d
Increased blood pressure/hypertension	19 (1)	1	59	79 (1)
Infant low birth weight/decreased gestational age	15 (1)	0	12	27 (1)
Heart disease	0	0	12	12
Increased heart rate	5	1	4	10
Diabetes	1	0	6	7
Increased body mass index	1	0	3	4
Miscellaneous outcomes (examined in <3 studies)	20	0	12	32
SF-12/36 positive physical health	1	0	6	7
Health-related behaviours	21 (1) (62%)	0 (0%)	13 (38%)	34 (1)
Cigarette smoking	4	0	0	4
Alcohol (mis)use	8	0	6	14
Substance (mis)use	5	0	1	6
Miscellaneous outcomes (examined in <3 studies)	4(1)	0	6	10 (1)
Other outcomes	15 (3) (17%)	20 (2) (23%)	52 (60%)	87 (5)
Positive health assessed via the SF-12/36	1	2(1)	2	5(1)
Positive self-assessed health status	3	17	20	40
Miscellaneous outcomes (examined in <3 studies)	11(3)	1(1)	30	42(4)
All outcomes	255 (14) (42%)	75 (9) (12%)	283 (46%)	613 (23)

Many articles examined multiple outcomes and, hence, the number of associations (613) is greater than the number of articles (138). Percentages may not add to 100% because of rounding.

^a Increased exposure associated with higher levels of the health-related outcome.

^b Increased exposure associated with lower levels of the health-related outcome.

^c Exposure unrelated to the health-related outcome.

^d The figure in brackets indicates the subset of total associations in this cell that are significant at the $0.05 < P < 0.10$ level rather than at the $P < 0.05$ level.

positively or negatively). With 314 of the 613 health outcomes examined, and 62 of the 138 studies in this review relating to mental health, these outcomes were the most commonly studied. The most consistent association between self-reported racism and health was found for negative mental health outcomes, for which 72% of examined outcomes were significantly associated with self-reported racism, all in the expected direction (i.e. more self-reported racism associated with worse mental health outcomes). Although examined in far fewer studies, 62% of health-related behaviours were also significantly associated with racism (almost all in the

expected direction). Only 48 and 36% of examined positive mental health outcomes and negative physical health outcomes, respectively, were significantly associated with self-reported racism with 8 and 1% of these associations, respectively, being in the opposite direction to the expected (i.e. more self-reported racism associated with better health outcomes).

There were 10 studies reporting the percentage of variance explained by self-reported racism.^{32,39,52,64,68,72,81,82,136} The variance explained ranged from 4^{32,68} to 42%¹³⁶ with a median and mode of 18%. A total of 43 statistically significant

ORs were also reported across 21 studies (there were also five relative risks reported from three studies^{15,84,99} and two ORs of <1.0 reported for positive health outcomes,^{26,124} which are not considered here). Of these ORs, 18 fell between 1.00 and 1.9, 20 between 2.0 and 2.8, and 5 between 3.0 and 3.5, with this range of ORs due, in part, to the sample sizes of the underlying studies. A handful of studies found various non-linear associations between self-reported racism and ill health,^{14,15,17,69} while twice as many studies found a linear dose-response association.^{13,57,67,69,78,109,110,116}

This review included 26 studies in which health outcomes including blood pressure,^{14,27,47,54,58,64,68,80,83,87,93,112,127,139,142} birth weight,^{76,84,96,109,110,114,116} BMI/obesity,^{43,117,135} and mortality²⁶ were objectively measured by physicians/researchers rather than self-reported by participants. Of these objectively measured negative physical health outcomes, 44% were significantly associated with self-reported racism compared with 36% of all negative physical health outcomes included in this review (which included these objectively measured outcomes along with self-reported outcomes). Such a discrepancy may be due to confounding between exposure and outcome measures, which are both self-reported; an effect that has been noted in the broader stress literature.¹⁶¹

As discussed above, there were seven studies examining health outcomes in relation to both racism and racism-related stress. Both racism and racism-related stress had similar associations with health-related outcomes in three of these studies.^{36,45,98} In the remaining four studies, racism-related stress, but not racism itself, was associated with increased systolic blood pressure⁶⁹; psychological distress⁹¹; somatization, depression, anxiety, psychoticism⁹³; and smoking.⁹⁸

Associations between study/exposure characteristics and health-related outcomes

The statistical significance (at the $P < 0.05$ level) of associations between self-reported racism and health-related outcomes also differed by a number of study and exposure characteristics as shown in Table 3. The highest proportion of significant associations occurred in studies published before the year 2000, measured self-reported racism over the past year/using no specified time frame, and used an exposure measure of 10 items or more in length or the SRE. Cross-tabulations of year of publication by other variables in Table 3 (analysis not shown) did not reveal any consistent patterns that would explain this finding.

As shown in Table 3, studies with exposure instruments of 10 or more items in length had somewhat more significant associations (72%) than studies with exposure instruments of <10 items in length (50%), despite a range of health outcomes (both mental and physical) measured by instruments of these differing lengths. Less than half of the health outcomes examined using the EDS (45%) and the EOD (30%) showed significant associations whereas 86% of health outcomes examined using the SRE were significant. This strong finding for the SRE occurred despite a range of study populations and health outcomes examined in the studies utilizing this instrument (results not shown).

Of the studies measuring racism over an explicit time frame of 12 months or less, 57% of examined associations were

significant whereas the corresponding figure was only 49% for studies measuring self-reported racism over a lifetime. This difference occurred despite the fact that these two categories were not mutually exclusive with 10 studies measuring self-reported racism over the past 12 months as well as over a lifetime.^{36,37,44,45,91,93,98,109,111,120} Of these 10 studies, five studies measured, analysed and reported on these two different exposure time frames for the same study sample.^{45,91,93,98,109} These five studies found that both exposure time frames were associated with markers of psychological distress,^{45,93} past year but not lifetime self-reported racism was associated with health outcomes such as very low birth weight¹⁰⁹ and psychological distress,^{91,93} and lifetime but not past year self-reported racism was associated with smoking.⁹⁸

A number of studies specifically compared associations between self-reported racism and health for various ethnic/racial groups. Several of these studies found that self-reported racism was related to ill-health for African Americans and Latino/a but not Whites,^{11,13,14,30,82,114,143} while, in other studies, similar associations were found between self-reported racism and health outcomes for Whites and non-Whites,^{33,73,114,129,143} with one study finding an association between self-reported racism and psychological distress for Whites but not African Americans.⁸⁹ Results from all the studies reviewed here, as shown in Table 3, suggest that the association between self-reported racism and health-related outcomes for studies that included White participants is comparable with the findings of studies involving other ethnic/racial groups.

Effect modification of the association between self-reported racism and health-related outcomes

The associations between self-reported racism and health-related outcomes examined in this review were modified by a number of psychosocial factors, which either intensified or attenuated the association between self-reported racism and health. Having a strong sense of racial/ethnic identity or concept,^{70,72,92} participation in traditional activities,⁶⁷ spirituality,⁹³ religious support seeking/instrumental social support,⁸⁵ and having personality traits such as hardiness⁴⁸ were found to attenuate the adverse effects of self-reported racism on depressive symptoms,^{67,70,72} psychological distress,^{48,92,93} and self-assessed health status.⁸⁵ Other research suggests that racial socialization (i.e. explicit discussion of race/racism) imparted by parents or caregivers, but not personal beliefs about racial socialization, may attenuate the detrimental effects of self-reported racism on mental health.⁴⁴ Self-esteem,⁴⁴ stressful events,¹⁰¹ and substance misuse⁸¹ have all been noted as effect modifiers, which intensify the detrimental effect of self-reported racism on mental health,⁴⁴ life satisfaction,¹⁰¹ and anxiety/depression.⁸¹

A range of socio-demographic factors has also been found to act as effect modifiers of the association between self-reported racism and health. One study found that the ill effects of self-reported racism on psychological health were intensified for women compared with men and attenuated for Mexican Americans compared with African Americans or Whites.⁷³ In another study, self-reported systemic racism in the workplace increased psychological distress to a greater extent among

Table 3 Significance of associations examined in 138 empirical quantitative studies of self-reported racism and health ($P < 0.05$)

	No. of significant associations	Total no. of associations examined	% of associations which were significant
Year of publication			
Before 2000	114	197	58
2000–04	216	416	52
Study design			
Cross-sectional	242	456	53
Cohort	41	77	53
Experimental	39	68	57
Case-control	8	12	67
Sampling procedure			
Representative/probability	155	283	55
Convenience	175	330	53
Sample size			
$n < 100$	50	100	50
$100 \leq n < 200$	76	132	58
$200 \leq n < 1000$	103	203	51
$n \geq 1000$	101	178	57
Region of study			
US	274	507	54
Outside the US	56	106	53
Study populations			
Ethnic/racial group ^{a,b}			
African American	218	419	52
White	71	132	54
Asian	76	137	55
Latino/a	62	111	56
Immigrants/refugees	25	40	63
Age ^{a,b}			
Adults	303	570	53
Children/adolescents	69	99	70
College students	53	79	67
Gender (in studies of adults)			
Men and women	243	463	52
Men only	15	28	54
Women only	72	122	59
Exposure instruments utilized^b			
Everyday discrimination scale ^{29,149}	33	74	45
Experiences of discrimination ^{14,15}	17	56	30
Schedule of racist events ⁴⁵	49	56	88
Exposure administration^b			
Self-administered	154	293	53
Interviewer-administered	154	294	52

Table 3 Continued

	No. of significant associations	Total no. of associations examined	% of associations which were significant
Exposure time frame^{a,b}			
None	154	258	60
Past year or less	113	198	57
>1 year \leq 5 years	7	21	33
Ever/lifetime	100	205	49
Length of exposure instruments utilized^a			
\leq 9 items	237	470	50
\geq 10 items	139	192	72

Percentages may not add up to 100% because of rounding.

^a Categories in this section are not mutually exclusive.

^b Categories in this section are not complete.

African Americans of higher SEP compared with those of lower SEP.⁷⁴ Another study found that the deleterious effect of mother-reported racism on infant birth weight was exacerbated for mothers aged 20–29, with over 12 years of education, or income in the second lowest bracket,¹⁰⁹ and other research has noted that self-reported racism has an intensified association with depression for respondents who were native to the US, had higher levels of acculturation, or were female.⁷⁷

Coping responses have also received some attention as effect modifiers of the association between self-reported racism and health in the studies reviewed here. Active/expressive responses to racism (including seeking social support), but not passive/internalizing responses, have been found to attenuate the association of self-reported racism with depression.⁶¹ There is also evidence more generally of the beneficial effect of active rather than passive coping on health outcomes,^{14,15,69,83,111,114} where these factors have been assessed as independent variables in their own right rather than as effect modifiers. However, there is also evidence that seeking social support may not be protective among those who lack sufficient social resources^{61,65} and the effectiveness of coping strategies more generally are likely to be very context dependent.¹⁶² Another potential effect modifier is the phenomenon of John Henryism (the tendency to work extremely hard to disprove stereotypes of laziness and inability),⁵⁸ which has been found to reduce blood pressure reactivity in African American women exposed to low levels of acute racism.¹⁴² Emotion-focused (as opposed to problem-focused) coping has also been found to reduce blood pressure reactivity during an acute speaking task about racist experiences.¹⁶³ More general research, which does not examine effect modification, has suggested that the passive response of self-blame and the active response of John Henryism may both be detrimental in the context of chronic racism,⁶⁴ while emphasizing the positive (a passive response) and trying to change the chronic experience of racism itself (an active response) may be protective.⁶⁴ Respondents in the studies reviewed here appear to be 2–3 times more likely to use active coping responses such as talking with others and doing something about racism rather than passive coping responses such as keeping quiet, accepting or ignoring racism.^{14,15,17,61,64,83}

Mediation of the association between self-reported racism and health-related outcomes

A number of mediators (i.e. intervening variables on the causal pathway) between self-reported racism and health have also been identified. Several studies found that the association between self-reported racism and health is completely or partially mediated by stress.^{29,50,72,78,123} Self-esteem was also found to mediate between self-reported racism and blood pressure,¹²⁷ psychological distress,¹² and depression/anxiety for male but not female adolescents.¹⁰³ The associations between self-reported racism and substance use, self-assessed health, alcohol abuse, and impaired fasting glucose have also been found to be mediated by psychological distress,¹⁰⁴ depression,⁵⁰ historical loss,¹¹⁸ and waist circumference,¹³⁵ respectively. Self-reported racism was itself found to be a mediator of the association between healthy food beliefs and healthy dietary behaviour,¹¹³ between financial stress and well being,³⁹ and between religious orientation and alcohol consumption.^{94,95}

Discussion

This review suggests that there is an association between self-reported racism and ill health after adjustment for a range of commonly measured confounders. The most consistent findings in this body of research to date have been for negative mental health outcomes and health-related behaviours and evidence from longitudinal studies also suggests that self-reported racism precedes ill health rather than vice versa. This review also indicates continuing debate in this emerging field of research about the aetiology of self-reported racism and health in terms of both relevant time periods and pathways/mechanisms of effect, especially in relation to the relatively stronger association between self-reported racism and mental health outcomes as compared with physical health outcomes, and the relationship between stress and self-reported racism. These issues are discussed below along with current limitations of this nascent research field and possible directions for future research. It should be noted that considerable research has been conducted into factors influencing the perception, attribution, and reporting of racism^{4,5,7,10,164–171} and, although vital to the study of self-reported racism and health, an overview of this research is beyond the scope of this paper.

Although it is clear that the aetiologically relevant time period for self-reported racism varies markedly by the health outcome in question, there is nonetheless debate on the appropriateness of specifying time frames in general for measuring self-reported racism. Some have argued that respondents do not assess or report racism in accordance with specified time frames and that, given the long-lasting nature of racist experiences, an unspecified time frame is the most appropriate.¹⁵⁴ However, it is unclear whether respondents report recent and/or highly salient/traumatic experiences of racism when responding to questions without a specified time frame. Also, the inclusion of an explicit time frame on surveys in general,¹⁷² as well as those assessing racism¹⁶⁵ is necessary to estimate the rate of exposure and to avoid confounding time-series analyses.¹⁶⁵ The results from this review suggest that studies which either leave exposure time frames unspecified or utilize a time frame equal to a year or

less are associated with the highest proportion of statistically significant associations and may tap into the same set of recent experiences. It may be that experiences of racism in the past year are more aetiologically relevant to the health outcomes assessed in this review or to health outcomes in general. It is also possible that a shorter time frame of exposure measurement ameliorates the effects of recall bias and/or maximizes the variability of self-reported racism given that lifetime prevalence of this exposure is very high (60–84%).⁷ By measuring, and comparing with various health outcomes, self-reported racism over different time frames within the same study, future research will be able to further our understanding of the aetiologically relevant time period of exposure for this health risk condition.

There are a number of possible explanations for the finding that self-reported racism is more strongly associated with mental rather than physical health outcomes. As noted by others,¹⁷³ it is possible that the association between racism and mental health is exaggerated or spurious owing to factors in the self-reporting of both exposure and outcome. This confounding has been found in relation to stress¹⁷⁴ and, as detailed above in relation to objectively measured vs self-reported health outcomes, may be at play in the studies reviewed here. If not caused by measurement artifice, it is possible that the relatively weaker association between racism and physical health occurs because racism has a lagged effect on physical health⁸⁹ mediated by negative mental health outcomes. However, none of the studies in this review reported on interactions between mental and physical health outcomes in relation to self-reported racism and future research on such putative interactions and possible lagged effects is required.

The relatively stronger association between self-reported racism and mental health outcomes also raises questions about the mechanisms by which racism affects health.

It may be that either direct psychophysiological effects on the brain or indirect neurophysiological changes wrought through other body systems (or a combination of both) mediate the association between self-reported racism and poor mental health outcomes. Studies that employ pharmacological blocks as well as brain imaging techniques should shed light on the psychophysiology of racism.¹⁷⁵ Researchers in the field of stress are now examining biomarkers specific to body systems (i.e. cardiovascular, neuroendocrine, and immune)¹⁷⁶ with evidence emerging that specific stressors differentially affect various physiological systems.¹⁷⁸ Similar research on racism would add to our currently scarce knowledge of the biological processes through which this exposure affects health.⁸

Research on self-reported racism is also hampered by debate about the relationship between racism and stress. Most studies reviewed here have conceptualized racism as a construct separate from stress. As shown in Table 2, of the 19 associations between self-reported racism and stress as a health outcome examined in this review, 13 were found to be significant positive associations. As detailed above, there is also evidence that the association between self-reported racism and health can be both mediated and moderated by stress and that the association between stress and health can be mediated by self-reported racism. At the same time, several studies have found that stress and self-reported racism are both independently related to health. It has been suggested that it is

not appropriate to weight the stressfulness of racist experiences, as this approach confounds exposure measurement with reactions to exposure⁸ and may not add to the predictive power of exposure instruments.¹⁷⁸ However, findings from studies examining racism-related stress, as presented above, indicate that the constructs of racism and racism-related stress may be distinct. Unfortunately, there is also considerable debate in the stress literature more broadly about how to characterize stress as an epidemiological exposure,¹⁷⁸ and further conceptual and empirical work will be necessary to clarify the association between self-reported racism and stress.

Other limitations in this emerging field of research include the reporting of effect sizes in relatively few studies, a reliance on non-representative sampling, cross-sectional studies involving adults, and a lack of psychometric validation of commonly used exposure instruments. Although one cross-sectional study has measured retrospective exposure to racism in childhood¹² and another found an association between parental denial of racism and child mental health status,¹¹¹ only 12 and 15% of studies have used longitudinal designs or involved children, respectively. More consistent reporting of effect sizes across different levels of exposure will allow meta-analyses of the association between self-reported racism and health. As detailed above, only a handful of studies have undertaken psychometric validation of the commonly used exposure instruments and further validation and comparison of these instruments is warranted. Furthermore, only 19% of the studies reviewed here have used data from existing regular omnibus surveys and only 19% of studies have utilized objectively reported, rather than self-reported, health outcomes. Inclusion of self-reported racism measures in existing survey vehicles, which collect data on objectively measured health outcomes, should be sought by researchers.

One topic that has received little attention in the literature to date is intra-racial racism. This form of racism occurs when an individual is discriminated against because of their race by a member of their own ethnic/racial group, as opposed to inter-racial racism where discrimination is also based on the notion of race but where the perpetrator and target of racism are from different racial groups. There is evidence to suggest that members of oppressed racial groups are more likely to consider negative behaviours from members of their own racial group to be discriminatory compared with similar behaviours from members of other racial groups.¹⁶⁹ One recent study found that 28% of African Americans and 15% of Latinos

reported intra-racial racism as the most prevalent form of racism they experienced,¹⁵⁹ and in another study 15% of 'problematic life experiences' were attributed to intra-racial racism.¹⁶⁰ However, only a single study included in this review specifically examined experiences of intra-racial racism.⁶⁹ This study found that intra-racial racism-related stress was associated with greater increases in blood pressure in comparison with inter-racial racism-related stress.⁶⁹ Clearly, further research on intra-racial racism and its association with health outcomes, is required. Similarly, a better understanding of vicarious racism (racism experienced by family or friends), systemic racism, and setting-specific racism (e.g. racism in the workplace, home, etc.) is needed to advance the study of self-reported racism and health.

Further research is also needed to elucidate the complex processes by which socio-demographic, psychosocial, and coping factors modify the association between self-reported racism and health. Furthermore, although many studies in this review examined White as well as non-White study populations, most of these studies statistically adjusted for race rather than undertaking stratified analyses. Such stratification will be required to clarify the differing associations between self-reported racism and health for dominant and minority racial group members.

Epidemiological research on the association between self-reported racism and health has only recently emerged as a body of research and it is clear that further investigation of this widespread and apparently damaging health risk condition is warranted. Rigorous methodological approaches and conceptual clarity will be needed to reveal how self-reported racism functions as a determinant of population health.

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KEY MESSAGES

- A relationship between self-reported racism and ill-health after adjustment for a range of confounders is evident from the 138 studies reviewed here.
- The strongest and most consistent association is between racism and poor mental health outcomes.
- This emerging field of study is limited by a dearth of cohort studies, few psychometrically validated instruments, infrequent use of objectively measured health outcomes and poor conceptualization of racism.
- As well as addressing these limitations, future research could also investigate the pathways via which racism affects health, the interplay between mental and physical health and exposure to intra-racial, internalized, and systemic racism.

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