Racism, Ethnic Discrimination, and Cardiovascular Health: Conceptual and Measurement Issues

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Contents

Abstract

Bias against members of racial and ethnic minority group members is expressed in the form of prejudice and discriminatory behavior at the cultural, institutional, and interpersonal levels. Members of racial and ethnic minority groups may also internalize this bias and endorse negative beliefs about their group as a whole or may incorporate negative stereotypes about the group into their personal identity. Prejudice and discrimination serve as psychosocial stressors for many members of racial and ethnic minority groups. Racial and ethnic discrimination contributes to increased risk for cardiovascular disease through multiple mechanisms. Although the results vary across levels of discrimination, the evidence suggests

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that racial and ethnic discrimination is associated with risky health behaviors, increased stress reactivity, impaired stress recovery, and high levels of several markers of cardiovascular disease. In this chapter, we review conceptualizations of each level of discrimination, review literature linking discrimination to cardiovascular health outcomes, identify strategies for measuring discrimination, and suggest areas in need of future research.

Keywords

Prejudice · Racism · Discrimination · Minorities · Cardiovascular disease

Racial and ethnic disparities in cardiovascular disease (CVD) remain a serious concern in the United States, and they are likely to contribute to significant disparities in life span [49]. Racism and ethnic discrimination have been hypothesized to contribute to these disparities by serving as a chronic psychosocial stressor [27]. In recent years, there has been an explosion of research designed to test this hypothesis [16, 115, 116]. But, there are still limited data, and many more questions that need to be answered, including among others:

What types or levels of racism are most likely to increase risk?
What is the frequency, intensity, or duration of exposure to racism that is required to increase risk for CVD?
What are the potential mediators of observed relationships of racism to health outcomes: cognitive and affective responses to race/ethnicity-based maltreatment, health habits, or other biopsychosocial mechanisms?
Are the effects of racism on cardiovascular health the same across different racial/ethnic minority groups?
Does racism affect risk for all types of CVD or are there disease-specific effects? If so, what accounts for differences among disease categories?

The purpose of this chapter is to provide a framework for conceptualizing and measuring racism in the context of cardiovascular research. We begin by considering definitions of racism and their implications for models of the ways in which racism can affect health. Next, we consider the different levels at which racial and ethnic bias can be expressed. In each section, we define the level of discrimination; provide a brief review of the relationship of the level of discrimination to health, focusing primarily on CVD and related health behaviors; address different methods of assessing each level of discrimination; and identify gaps in the literature and suggest new areas for research.

To date, much of the conceptual and empirical work on the health effects of racism has focused on effects of racism on Black Americans, as Black American scholars and activists were at the forefront of bringing issues of discrimination to national attention as related to health endpoints [27]. Therefore, much of the research we present in this chapter focuses on Black Americans; however, the available

evidence suggests that racism and ethnic discrimination are harmful for all groups. Our own research and that of others suggests very limited differences among racial and ethnic minority groups in the harmful effects of discrimination [15, 52].

Constructs and Definitions

Racism is a complex construct with a wide range of attributes. Specific definitions of racism often incorporate underlying principles that drive discrimination, including those related to racial superiority and racial subjugation as well as the observed manifestations of these beliefs as they are expressed in social conditions and human behaviors. For example, Gee and colleagues [53] defined racism as a "broad construct that reflects the processes, norms, ideologies, and behaviors that perpetuate racial inequality" [53]. Similarly, Clark and colleagues suggested the following definition for racism: "the beliefs, attitudes, institutional arrangements, and acts that tend to denigrate individuals or groups because of phenotypic characteristics or ethnic group affiliation" [27]. Ethnic discrimination "involves unfair treatment that a person attributes to his or her ethnicity" [29]. Contrada and colleagues [29] describe different types of maltreatment associated with ethnic discrimination including verbal rejection, avoidance or shunning, disvaluation, inequality/exclusion, and threat/aggression. Thus, drawing on the similarities in emphasis on exposure to unfair, unequal, and potentially threatening maltreatment as a function of one's phenotypic or cultural characteristics, we use the terms racism and ethnic or racial discrimination interchangeably.

These definitions include the creation of "in" and "out" groups, stereotyping, the development of prejudicial beliefs and discriminatory practices, and the process of stigmatization [106, 127, 132]. As part of the process of discrimination, individuals are assigned to a group based on observable cultural or physical characteristics or ethnicity-related cues, including accented language or skin color, among other characteristics. The group as a whole is assigned negative characteristics such as laziness or dishonesty. These characteristics are seen as inherent to all individuals in the group, regardless of their individual performance or capabilities. The characteristics associated with the group vs. those associated with the specific individual are seen as more valid and more relevant indicators to employ when making evaluations about the individual's potential merit. These widely disseminated, overly general, and fixed beliefs about the characteristics associated with group membership are referred to as stereotypes [3].

When negative stereotypes are associated with a group which is not one's own, that group becomes an "out-group" and members of the out-group become potential targets for prejudice and discrimination. Prejudice refers to the negative attitudes, thoughts, and feelings experienced when considering members of this out-group. These attitudes are used to justify discrimination. Discrimination is the behavioral expression of these prejudices and involves differential treatment between out-group and in-group members. An out-group is considered to be stigmatized if members of

the group are subject to stereotypes about their characteristics, regarded with prejudice, and treated in a discriminatory manner by a more powerful in-group [96].

The Levels and Types of Racism and Ethnic Discrimination

A comprehensive model of the effect of racial and ethnic discrimination on health must take into account the wide range of experiences that can be influenced by racial bias, as well as the complex ways in which this bias can be expressed. Messages about the relative status, rights, and privileges to be accorded any group can be transmitted through media communications, institutional rules, and interpersonal exchanges, as well as through the messages individuals send to themselves. Therefore, investigators and theorists have suggested examining four different levels (i.e., cultural, institutional, interpersonal and internalized racism) when considering the effects of racism on health [63, 74, 82, 122]. Delineating and measuring these different levels, contexts, and forms of racism can allow researchers to develop more effective models for understanding the ways in which racial bias can influence cardiovascular health [15].

Cultural Racism

Do the manifestations of cultural racism (e.g., bias in media presentations of ethnic or racial groups, marginalization of racial or ethnic minority role models, or limited recognition of traumatic historical events) influence the health beliefs and behaviors of members of these groups?

Do media representations of members of ethnic and racial majority and minority groups influence healthcare providers' expectations about the members' health and health behavior? Do these representations affect the development of treatment plans?

What types of cultural messages, delivered through which types of cultural communications (e.g., though mainstream or social media; through promotion and recognition of role models) can "undo" widespread stereotypes about a particular group?

Cultural prejudice and discrimination emerge from social beliefs and customs that reflect the idea that a dominant culture and its products are superior to those of other cultures [118]. Cultural discrimination is manifested as widespread prejudice and acceptance of stereotypes concerning different racial and ethnic groups. Studies using data from national surveys of explicit beliefs, databases of tests of implicit attitudes, and investigations of Google searches for signs of racial animus, all indicate that prejudice persists, although there have been some signs of improvement [23, 36, 137].

One way in which biased beliefs are both developed and maintained is through mass media that is comprised of widely used forms of communication, including film, television, advertisements, newspapers and magazines, and the internet. Media

presentations, including TV news and entertainment programming, are effective methods to communicate stereotypes about groups and to convey attitudes towards group members, because the individuals presented in the media serve as social role models [148]. Stereotypes are promoted and maintained when the behavior of the actor(s) from a particular group is scripted to be consistent with stereotypes about members of the group [34]. In this way, biased media presentations affect viewers' beliefs about the degree to which out-group members merit full social inclusion [41].

The beliefs and attitudes communicated in the media can initiate or maintain discrimination on all other levels [97]. Biased media presentations can serve as a justification for institutional or interpersonal acts of maltreatment [135], and they can encourage the development of self-stereotyping and the internalization of racial stereotypes [123, 124]. As we will discuss in the next section, the effects of media representations may become more salient as a function of racial isolation, a byproduct of residential racial segregation [50].

Measurement Strategies and Limitations

There has been increasing interest in cataloguing the different types of information about race and the relation between race and health transmitted via various forms of media [44]. Investigators have examined the content and tone of coverage, the choice of images and words, and the quantity of media consumed by each individual [38, 44]. To assess the effects of cultural-level discrimination on health, investigators have examined area-level differences in Google searches and twitter posts with themes and messages associated with racism and discrimination [25] or employ county-wide assessments of explicit and implicit bias derived from the Project Implicit website database [107]. In another approach, investigators have examined the effects of major race-related events including the nomination of President Obama [98]. Finally, some measures of self-reported racism include scales that assess the degree to which a targeted individual believes his or her racial or ethnic group has been portrayed in an unfair or derogatory light in the media [13, 145]. However, to our knowledge investigators have not yet examined the relation of these self-report measures of exposure to cultural racism to health outcomes.

Health Effects

The study of the effects of cultural discrimination on health is relatively new [120]. One novel approach includes examining Google searches to identify the frequency of prevailing attitudes toward minority racial and ethnic group members in different communities. Researchers report that market-area prevalence of Google searches, including the "N word" – an indication of cultural attitudes toward Black individuals – was significantly associated with overall mortality in the area and in particular mortality from heart disease and stroke among Blacks residing in that area [25]. County-wide estimates of Whites' explicit bias toward Blacks derived from the Project Implicit database were associated greater prevalence of circulatory illnesses among Black and White adults, with stronger effects seen for Black adults [94].

Cultural discrimination may also exert effects on health behaviors through social cognitive pathways. Social cognition encompasses the mental structure and

processes used to perceive and respond to the social world [19]. For example, Yanovitzky and Stryker [158] argue that the effects of the media on perceptions of group norms play an important role in shaping racial differences in health practices [112]. When certain health behaviors or health-related characteristics, such as low or normal body weight, are not depicted as part of the norm for a particular group viewed as part of the group's identity, then individuals may reject these behaviors, consider them irrelevant, or view them as outside their personal control. As a consequence, individuals may not identify with particular goals or actions, the behaviors may not be incorporated into the individual's personal identity, and motivation to engage in these behaviors may be diminished [136]. For example, data from several studies suggest that individuals who are the target of racism are more likely to endorse unhealthy behavior as part of their self-identity [121]. Similarly, some individuals internalize negative stereotypes associated with their group to enhance group belonging [90, 113, 121]. If individuals perceive threats to belonging, they may act in a manner consistent with stereotypes about their group, even if the actions are not beneficial for their health [134].

Media presentations can change perceptions of group norms relatively rapidly, depending on the perceived authority of the media. In several priming studies [67, 121, 148], researchers found that even very brief exposures to depictions of negative attitudes towards members of racial or ethnic minority changed unconscious attitudes toward the group or the attributes associated with the group, among other variables. Recent social marketing efforts suggest that individuals can incorporate positive health-related messages into their identity [109, 156, 157].

Future Directions

There is still a need for more research conceptualizing, assessing, and measuring the effects of cultural discrimination. Research is needed to evaluate the effects of variations in the timing, frequency, and duration of the effects of different types of media exposure on race-related attitudes and health behaviors. Similarly, further research is needed on the health effects of social changes (e.g., removing Confederate flags from government buildings) or social movements (e.g., Black Lives Matter), on health beliefs, behaviors, and outcomes among both majority and minority groups members.

Efforts to develop culturally sensitive interventions have highlighted the importance of considering group norms for health beliefs and social behavior [22]. Norms concerning health behavior may be communicated to members of ethnic and racial minority groups via culturally specific media venues, some of which may be unfamiliar to healthcare providers or investigators [79]. Further research is needed to evaluate the extent to which healthcare providers are aware of and understand the health-related messages to which their patients are exposed.

To the degree that health-damaging messages in an individual's media diet are embedded or consistent with culturally relevant information, it may be particularly difficult to change health behavior on an individual level. For example, when commercial advertisements are presented in ways that are consistent with cultural identity, viewers may be more likely to internalize messages about the role of those

products in ethnic identity and cultural belonging [144]. Consequently, interventions directed at the individual level may also need to identify and address cultural and/or media determinants of unhealthy behavior. Additional research is needed to understand the parameters that must be included in the messages to "undo" media content which pairs messages about unhealthy behavior with race or ethnicity [110, 111, 144].

Institutional Racism

What variables should be defined as outcomes of institutional racism (e.g., residential racial segregation; inequities in the criminal justice system; inequities in healthcare)?

What variables mediate the relationship of institutional racism to health? For example, does residential segregation influence health norms and behaviors; access to health resources; chronic stress exposures and/or other variables? Do the same variables mediate the relationship of criminal justice system involvement to health?

Do specific healthcare policies (e.g., regarding insurance reimbursement or provider qualifications) have different outcomes for individuals of different ethnicities/races?

Are laws that protect minority group members' rights (e.g., laws protecting access to voting) also protective of their health and the health of others?

Although there are differences of opinion concerning the specific definitions of institutional racism, several authors suggest that institutional racism refers to specific policies and/or procedures of institutions including government, business, schools, churches, etc. that consistently result in unequal treatment for particular groups [8, 61, 92]. Gee suggests that institutional racism represents "the processes built into social entities – such as governments, bureaucracies, and culture – that reinforce the racial hierarchy" [53]. A clear example of explicit and intentional institutional racism include state and local "Jim Crow" laws which were in effect in the United States through 1965 [73]. These laws mandated separation of Black and White individuals in public and private places and regulated access to social and vocational opportunities by race. Jim Crow rules were explicit expressions of racist attitudes on the part of the policy makers as well as society at large.

Policies resulting in unequal treatment can be considered a form of institutional racism, even in the absence of evidence of deliberate individual racial prejudice on the part of the policy-makers and when the policies emerge in response to factors independent of race. This is the case when, as a function of relative racial segregation, majority group policy-makers are less aware of or responsive to the consequences of these policies for minority stakeholders. In some cases, policy-makers may not perform the preliminary analyses necessary to determine if there will be racial disparities in the outcomes of these policies or may not modify policies once inequality becomes apparent [152].

In general, research on the relationship of institutional racism to health has focused on the outcomes of these policies or practices, rather than the specific laws or policies themselves. Two outcomes of interest to health psychologists and behavioral medicine researchers include residential segregation and incarceration. Residential racial segregation and disparities in incarceration rates are likely to be multi-determined. However, these outcomes can be considered institutional discrimination as there is evidence linking them to institutional policies and procedures as we have reviewed elsewhere [17]. Other examples of circumstances that have been regarded as institutional racism which affects health include allocation of medical resources and training [5, 79] and racial differences in the application of different mental health diagnoses and treatment in psychiatry [65].

Residential segregation refers to "the degree to which groups of people categorized on a variety of scales (e.g., race, ethnicity, or income) occupy different space within urban areas" [80]. Black individuals live in more segregated communities than do any other racial or ethnic group [151]. Race-based residential segregation is most pronounced among individuals with low levels of income and education [43, 91, 153]. The effects of residential racial segregation on health are likely to be a function of reduced socioeconomic resources and increased stress that arise, at least partly, as a function of this segregation. Given substantial Black/White disparities in assets, racial residential segregation results in communities with fewer economic resources [86, 126, 151–153]. The lack of resources inhibits the development of social and economic capital among the Black residents in the area and limits the ability of these communities to attract more affluent residents who can provide additional social and economic capital [66].

Differential exposure to harsh policing and incarceration can also be considered a form of institutional discrimination [2]. Black, Latino, and American Indian individuals are more likely to be incarcerated than Whites [39, 141]. About 1 in 11 Black Americans (versus 1 in 45 Whites Americans) is under correctional control [133]. Furthermore, recent investigations suggest that African American and Latino men are much more likely than White men to receive harsh sentences, controlling for a variety of other sociodemographic factors [39].

Measurement

The measurement tools used to assess institutional discrimination depend on the outcome being investigated. These outcomes can include segregation, incarceration, voting rules and regulations, and access to healthcare, among others. There are a number of different strategies for conceptualizing and quantifying residential racial segregation such as the index of dissimilarity, the index of isolation, or the index of concentration. These and other indices have different advantages and disadvantages and have been well reviewed elsewhere [48, 72, 80]. Recent reporting highlights the role of tax credits and the implementation of regulations governing the use of tax credits to support low-income housing [42]. Studies of incarceration have included measures of "stop and frisks," convictions for different levels of offenses, severity of

sentencing, access to parole, access to community-based alternatives, and available support services for ex-offenders, among other variables [39].

Recently, investigators are using geographic information systems (GIS) and remote sensing technologies to isolate the characteristics of different neighborhoods or areas that affect health encompassing specific facilities and resources such as parks, medical offices, water supply wells, energy sources, etc. [126, 160]. These measurement tools can supplement other research examining regional or ethnicity-based differences in healthcare practices or training [5]. GIS data may also help track the zoning rules and or residential banking policies that are most closely associated with the development of racial residential segregation or the allocation of specific resources (e.g., parks, transportation hubs, etc.) to different areas. These methods are already in use to track criminal activity [149]. New methods of analysis including decision-tree analyses may help researchers and planners identify the relative importance of access to different health enhancing resources [33, 93].

Health Effects

Residential racial segregation is associated with higher rates of hypertension and coronary heart disease for Blacks adults [76, 105, 126, 150]. Racial disparities (i.e., differences between Blacks and Whites) in rates of hypertension are much more marked in highly segregated areas, particularly areas which suffer from economic disadvantage as well [76]. In fact, Black- White differences in CVD and CVD risk factors are substantially reduced when Black and White individuals reside in areas with comparable levels of advantages and disadvantages [11, 140].

Racial residential segregation, even independent of economic segregation, results in more restricted access to healthy foods and less access to venues which support physical activity [45, 146]. Residential segregation also has been associated with CVD risk factors including obesity, physical fitness, smoking, and other variables. However, the effects vary considerably by race/ethnicity and gender and depend on the risk factor under investigation [75]. For example, some population-based data suggests high levels of segregation are positively associated with obesity for Black women, but negatively associated for Mexican women, independent of other sociodemographic factors [10, 77]. In general, the effects of racial/ethnic segregation on health are not seen as consistently for Hispanic populations, and the effects of segregation on health depend on immigration status, gender, and country of origin, among other [125].

Compared with the general population, individuals in correctional facility settings have higher rates of poor physical health [9]. Even though many of the health issues reported by inmates have been acquired in the community, there is increasing evidence that incarceration may cause higher rates of stress-induced health conditions including hypertension and heart problems [99, 100, 147]. As a result, public health scholars have been increasingly responding to calls for research on health disparities generated by the criminal justice system, which disproportionately target Black and Latino individuals who have been involved in the criminal justice system [9].

Future Directions

Forced residential segregation is illegal and contrary to espoused values of equal opportunity. Nonetheless, many neighborhoods remain segregated. Therefore, it remains essential to clarify the specific social- and material-level resources within neighborhoods that can promote health in under-resourced neighborhoods. In future research, it will be critical to understand the factors that make some types of ethnic or racial concentration beneficial versus harmful and to identify groups who do versus do not benefit from ethnic density [35, 128].

Studies of discrimination against the lesbian, gay, bisexual, and transgender (LGBT) community suggest that institutional discrimination in the form of laws, regulations, and local policies have significant and measurable effects on mental health and substance abuse [120]. These studies need to be extended to understand the health effects of discriminatory policies targeted at racial and ethnic minority communities. Investigators could examine area or community level limitations on voting rights, access to legal aid, implementation of programs providing housing tax credits or vouchers, or the frequency of race-related complaints against police departments, among other policies and procedures, and investigate the relation of these factors to health outcomes.

It is worth noting that as data on disparities have become part of public knowledge, legislators have acted to modify the racial disparities, although much more work needs to be done. One critical area of translational research is understanding the processes through which knowledge dissemination changes unjust social policies [64]. This research is needed to encourage voluntary change (e.g., in the areas of targeted marketing) and for identifying situations in which governmental action is necessary and warranted.

Individual-Level and Interpersonal Racism

Do the health consequences of exposure to racism vary depending on the form of expression (i.e., prejudicial attitudes versus discriminatory behavior); on the directness of expression (i.e., whether the racial bias is implicit or subtle versus overt or blatant?); on the personal nature of the exposure (i.e., the degree to which the maltreatment was directly or vicariously experienced?) and/or on the type of experience (i.e., social exclusion vs. workplace discrimination vs. threat or harassment)?

Is there a linear relationship of exposure to health outcomes? Is a single episode of discrimination enough to trigger long term changes in health?

Do cultural or institutional racism sustain the effects of individual-level exposures to race- or ethnicity-related maltreatment?

Are the mental and physical health effects of exposure the same across all racial and ethnic groups? Are there other intersectional effects?

The bulk of research on the relationship of racism to health has focused on the effects of self-reported individual-level racism. Self-reported individual-level racism includes episodes of race- and ethnicity-related mistreatment that are experienced

by the targeted individual [114, 145]. Individual racism is often experienced in an interpersonal context, and interpersonal racism has been defined as "directly perceived discriminatory interactions between individuals whether in their institutional roles or as public and private individuals" [82]. Microaggressions are another way of conceptualizing individual-level discrimination, an idea formulated in the 1970s by a Black psychiatrist [117]. Microaggressions are defined as "everyday, unintentional, and unconscious" discriminatory acts [138]. Many types of microaggressions occur within an interpersonal context, but some formulations of microaggressions include examples of cultural discrimination that could occur outside of an interpersonal context. An example, for Black Americans, an example of this type of microaggression includes viewing historical markers of violence towards members one's group, including statues of Confederate soldiers.

Episodes of race- and ethnicity-related interpersonal mistreatment can vary in the degree to which the racial bias is explicit and overt vs. implicit or subtle. When racial bias is explicit, the intent of the perpetrator is clear to the target, and the prejudice may be directly expressed using slurs or other types of communications and actions. When the bias is implicit or subtle, it may be communicated via less direct means (e.g., tone of voice or body language). In implicit or subtle discrimination, the racial bias motivating the mistreatment may be observed and experienced by the targeted individuals, but may be less clear to those observing the incident [6]. When people are not familiar with the cultural history of a particular group, they may not recognize that episodes of subtle social distancing may communicate threat to the members of the targeted group and trigger concerns about explicit or implicit harm due to racial bias [15].

Interpersonal racism can be expressed in different types of behaviors including social exclusion, stigmatization, threats and harassment, and discrimination across a host of settings including school or work. An explicit attempt to create social distance between racial groups included forced segregation embodied in separate schools and public facilities and deliberate placement at the "back of the bus." Subtle social distancing can include verbal and non-verbal behavior that communicates rejection or exclusion, commonly displayed as crossing to the other side of the street, avoiding eye contact or looking in a disapproving way, failing to invite individuals to join social or work events, or ignoring requests for help [68]. Prejudicial beliefs about group members' competency, honesty, intelligence or diligence can lead to discriminatory behavior at school or work. Research suggests that in the workplace, Black individuals are penalized for mistakes or difficulties more heavily than are White individuals [36]. Harassment expressed in the form of verbal or physical attacks on an individual or his or her property is another form of discriminatory behavior. The social barriers against violence and protections against harm typically do not extend to those who are stigmatized [13, 119].

Episodes of race- and ethnicity-based maltreatment may also have consequences whether they are experienced directly or indirectly [82]. If phenotypic or cultural characteristics render an individual vulnerable to discrimination, then harm befalling others who share those characteristics may serve as vicarious experiences of racism [63]. The combination of events directly targeted to the individual and those targeted

at friends and family can strengthen the perception of the pervasiveness of race- and ethnicity-based maltreatment.

Measurement Strategies and Limitations

There are multiple self-report scales used to measure individual-level racial and ethnic discrimination. All scales ask about exposure to mistreatment experienced in a variety of contexts, but differ in the specificity of the questions. The scales also vary along a number of dimensions including the extent to which they are intended to assess discriminatory experiences targeted at a single racial or ethnic group vs. all individuals; the time frame of exposure (i.e., recent, lifetime); the requirement to directly attribute the mistreatment to racial bias on the part of the perpetrator; and the inclusion of affect and coping items. The reader is referred to reviews of conceptual and methodological issues in the measurement of discrimination [81, 102, 108, 153].

The hypotheses of the study affect the choice of scales to use. For example, studies intending to understand the contexts in which discrimination occurs may need to consider scales which inquire about being exposed to discrimination in a variety of different settings such as schools or medical facilities (e.g., Experience of Discrimination Scale (EOD) [83]. Studies examining the modes through which bias is conveyed may need scales which inquire about specific types of discriminatory behavior including social exclusion, workplace discrimination, and physical threat (e.g., Perceived Ethnic Discrimination Questionnaire-Community version [PEDQ-CV] [13].

Consistent with the stress and coping model, some instruments include items assessing appraisals, coping, and distress along with or embedded within items assessing exposure to race- and ethnicity-related maltreatment (e.g., the Index of Race-Related Stress [145], the Schedule of Racist Events (SRE) [88]). The inclusion of these affective items is useful if researchers are examining race- and ethnicity-related stress as a whole. However, items intending to measure exposure to discriminatory events and include assessment of appraisals and affect in response to those events are not appropriate for studies in which mood or stress are the outcome measures.

The effects of discrimination may also vary depending on the timing of events [18]. Even acute events may have long lasting effects if they create anticipatory anxiety, vigilance, and rumination, all psychological processes that sustain the negative effects of stressor exposure [54]. Several scales permit assessment of differences in the timing of exposure such as the PEDQ-CV [18] and the SRE [89].

Scales focused on a single group often include items that are highly sensitive to the experiences of members of that targeted group (e.g., The Asian American Perceived Racial Discrimination Scale [159], The Perceived Racism Scale [PRS] [101]). These scales include experiences easily identifiable by and more relevant for, members of that group. In contrast, measures designed for use across multiple groups (e.g., PEDQ-CV, General Ethnic Discrimination Scale (GED) [89], or EOD [84]) permit investigators to determine if the rates of exposure or the consequences of exposure vary among and across groups. These scales can be used to build more general models of the effects of discrimination.

Health Effects

Individual-level lifetime discrimination has been associated with incident CVD, independent of other cardiovascular risk factors, including depression in a multiethnic sample, and everyday discrimination was associated with incident CVD only in men [46]. Individual-level discrimination has also been associated with markers of CVD including coronary artery calcification [33, 58, 95, 142].

Individual-level racism may affect health through a number of mechanisms, including health behavior and stress reactivity and recovery [19]. Cross-sectional data indicate consistent relationships between racism and risk factors contributing to the development of CVD including depressive symptoms [115], smoking [18], other substance use [55], and low birth weight [28, 56, 57]. Some, but not all, data suggest that individual-level racism may be associated with obesity [12, 31, 32, 70, 104]. Longitudinal data suggest a relationship of racism to depression and obesity [52, 115], as well as to smoking and substance use among youth and young adults [103].

Racism also has been associated with heightened stress reactivity and impaired stress recovery in autonomic, neuroendocrine, and immune systems. For example, in laboratory studies, members of racial and ethnic minority groups display greater cardiovascular reactivity demonstrated by increased heart rate and blood pressure when they are asked to think about discriminatory events [30] or when they view presentations of individuals experiencing discrimination [4]. Evidence from both laboratory and ambulatory monitoring studies suggest that exposure to racism may heighten cardiovascular reactivity to a wide range of daily stressors. For example, as we and others have reviewed, measures of racial and ethnic discrimination are associated with ambulatory blood pressure during the day [16, 40].

Discrimination also has been associated with impaired recovery from stress. For example, most but not all studies indicate that discrimination is associated with higher levels of blood pressure during the night and reduced nighttime blood pressure dipping, suggesting poorer recovery from daily stress and disruptions to circadian rhythms (see reviews by Brondolo et al. [16], Dolezsar et al. [40]. Persistent discrimination and other forms of psychosocial stress have been associated with flatter diurnal slopes in several cross sectional studies [71] and prospective studies [1], although not all studies have found these effects [51]. Discrimination has been consistently associated with sleep impairments [7, 58, 131]. Sleep impairments may drive difficulties in physiological recovery across systems and consequently contribute to disparities in CVD [47].

Future Directions

The study of the health effects of exposure to interpersonal racism is a growing area, but many measurement issues must still be addressed. Some have argued that targeted individuals may not be willing to recognize or report race- or ethnicity-related mistreatment, because it is too painful to recollect the episodes, too depressing or infuriating to be seen as a victim, and because acknowledging discrimination is perceived as giving power to those who engage in discrimination [85]. Further research is needed to understand how to improve the capacity to document experiences. It also will be important to understand the degree to which specific types of

discrimination (e.g., race-related social exclusion vs threat and harassment) contribute to negative health outcomes either differently or above and beyond the effects of overall exposure to discrimination and other stressors. Understanding intersectional effects, including the ways in which the experiences of discrimination are similar across racial or ethnic groups or vary by other social statuses (e.g., gender or socioeconomic status), will be valuable for efforts to develop context-specific interventions [155]. Investigating the ways in which cultural and institutional sources of bias drive interpersonal experiences of maltreatment will also be a critical area of research.

Understanding the biopsychosocial mechanisms through which discrimination affects psychological functioning is a critical area of research [19, 20]. More research is needed to understand the psychobiological processes through which discrimination and its effects on social cognition contribute to impairments in self-regulation and health behavior and changes to the reactivity and recovery of systems responsible for stress mediation, including the neuroendocrine, immune, and autonomic systems [20].

Internalized Racism

How do cultural messages affect the ways people think about themselves and others, including members of their racial or ethnic group?

What types of stereotypes are most likely to be internalized? Are there individual or group differences in vulnerability to the internalization of these stereotypes?

How do self-stereotypes develop? Do efforts at racial socialization effectively challenge the effects of negative cultural messages on the way people think and feel about themselves and others?

Internalized racism is defined as "the acceptance, by marginalized racial populations, of the negative societal beliefs and stereotypes about themselves" [139, 154]. Individuals may or may not be aware of their own acceptance of these negative beliefs. Internalized racism can also be expressed via a rejection of the cultural practices of one's own ethnic or racial group. Some conceptualizations of internalized racism have also encompassed the internalization of distress associated with exposure to racism [69].

Self-stereotyping occurs when negative stereotypes about a group are absorbed into the self-concept of a stigmatized individual [69, 129]. The notion of self-stereotyping emerges from social categorization theory, which argues that classifying the self as a social group member "systematically biases self-perception. . .to render it more closely in accordance with stereotypic in-group characteristics" [69]. Members of stereotyped groups and low status groups are more likely to self-stereotype (e.g., endorse characteristics associated with negative stereotypes, such as unintelligent or lazy [123]) when compared to members of higher status groups [90]. Members of negatively stereotyped groups, on average, show increased self-stereotyping in relevant social contexts when compared to members of negatively

stereotyped groups who are not in such contexts [62, 129, 130]. For example, members of racial minority groups self-stereotype when group compositions are manipulated (e.g., they are a member of the minority versus majority group in a given situation [129], ethnic identities are made salient [130], and social comparisons are activated [62]).

Incorporating group-related stereotypes into one's self-identity may increase a sense of belonging, even when those stereotypes are negative [90]. However, despite possible benefits for a sense of belonging, negative self-stereotyping or internalized racism has also been associated with psychological stress, including symptoms of depression and anxiety [143].

Measurement

Internalized racism can be assessed with self-report scales, including the Nadanolitization Scale (NAD) [139]. The NAD assesses the extent to which Blacks have internalized racist concepts and endorse ideas including the notions that Blacks are "physically gifted" and Blacks are "mentally defective." The NAD) (and other measures of self-reported internalized racism) are self-report measures, and the use of self-report measures assumes that individuals can override their self-presentation biases and are aware or conscious of the internalization process [59]. Some investigators have employed implicit measures of racial bias, such as the Implicit Association Test [60], to assess internalized racism and circumvent some of the issues related to presentation biases [24].

Implicit measures of self-stereotyping assess the degree to which individuals stereotype themselves vs. the group as a whole. Borrowing from methods in cognitive psychology, some implicit measures of self-stereotyping use reaction time tasks to assess spontaneous associations between the self and negative stereotypes (e.g., endorsing beliefs about one's own characteristics which are consistent with negative stereotypes about the group). These implicit measures permit investigators to assess the relationship of personal identity to negative stereotypes using methods that are generally outside of an individual's conscious control [24].

Health Effects

The limited available evidence suggests an association of internalized discrimination to cardiovascular risk factors and cardiovascular disease. Specifically, Black Caribbean adult and adolescent females with high levels of internalized racism are more likely to exhibit elevated blood pressure than those females with low levels of internalized racism [143]. Other studies suggest that internalized racism is associated with elevated abdominal obesity and a history of CVD [21, 26, 143]. Internalized negative attitudes moderated the effects of lifetime discrimination on CVD, such that discrimination was associated with a history of CVD only for men who also endorsed negative attitudes towards their group [23]. Similarly, among African American men, interactions of discrimination with implicit racial bias (i.e., implicit preferences for European vs. African American faces) predicted hypertension [24].

Some of the effects of negative self-stereotyping on obesity may be mediated through social cognitive processes, including those related to self-esteem. For

example, among Hispanics, measures of self-stereotyping have been linked to objective body mass index, and the association was mediated by self-esteem [124]. These data suggest that self-stereotyping may reduce psychological resources, including self-esteem, lowering the capacity for self-regulation.

Future Directions

There has been insufficient research to indicate how different levels of racism (i.e., cultural, institutional and interpersonal) may affect the development of internalized racism or self-stereotyping. Studies are also needed that identify other features of the social environment or the individual which exacerbate or mitigate against the development of internalized racism or self-stereotyping.

Research is needed to develop positive population-level and individual-level interventions which could modify negative self-stereotypes. Data suggest that providing opportunities for self-affirmation can protect one's self-concept from social threats and even promote healthy behavior [37, 78]. However, not all intervention data support these approaches [87] and interventions designed to shift implicit biases in the short term may differ from data on interventions designed to modify self-concept over the long run.

Research on social identity suggests that identity-based interventions may help protect individuals from the negative effects of stereotypes, which can have downstream positive health consequences [113, 123]. For example, Rivera and Benitez [123] made salient the successes and achievements of African-American exemplars including Barack Obama, Oprah Winfrey, and Martin Luther King, Jr. Across two experiments, African-American adolescent and adult participants who read about the exemplary lives of African-Americans exhibited lower levels of self-stereotyping, when compared to participants in a control condition. New research is needed to expand the understanding of these valuable social role models on social cognitive processes and health.

Summary and Conclusions

The processes involved in racism directly threaten an individual's ability to meet a broad range of human needs, including needs for achievement, social connection, and safety [14]. As a consequence, members of stigmatized groups versus members of majority groups are exposed to more stressors related to discrimination and may be deprived of the resources needed to cope with these stressors. Discrimination may also deprive individuals of the resources they need to mitigate the effects of chronic stress on health. The persistent effects of racism on negative mood can sap the motivation to change health behavior and reduce social support [17]; the threats to racial identity and internalization of negative stereotypes can diminish the initiative and persistence needed to change health habits [113]. The achievement of changes in health behavior can require higher levels of motivation, effort, and persistence than are required from members of a majority (non-stigmatized) group. Over time,

continued threats from discrimination can further decrease motivation and exhaust resources, creating a vicious cycle that undermines health [20].

Although much more research is needed and the evidence is not fully consistent, data suggests that racial and ethnic discrimination is associated with elevated risk factors for CVD and increases in CVD markers and incident CVD. To build models of the relationship of discrimination to health that can guide intervention, it will be critical to isolate the components of discrimination contributing to poor health outcomes. Some outcomes of exposure to maltreatment, including depressed mood, may mediate the effects of discrimination on [15]. Other environmental conditions, such as poverty may serve as moderators of the effects of interpersonal racism [75], and the effects of discrimination may vary depending on other social status variables [155]. Further, it will be important to understand the ways in which discrimination contributes to the onset versus the course of illness. Bidirectional relationships between racism, stress mediators, and health may further complicate analyses. As new research clarifies the nature and effects of discrimination, it will be possible to design interventions at every level that enable individuals to prevent discrimination and to promote health.

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