
Racism as a Stressor for African Americans

A Biopsychosocial Model

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Various authors have noted that interethnic group and intraethnic group racism are significant stressors for many African Americans. As such, intergroup and intragroup racism may play a role in the high rates of morbidity and mortality in this population. Yet, although scientific examinations of the effects of stress have proliferated, few researchers have explored the psychological, social, and physiological effects of perceived racism among African Americans. The purpose of this article was to outline a biopsychosocial model for perceived racism as a guide for future research. The first section of this article provides a brief overview of how racism has been conceptualized in the scientific literature. The second section reviews research exploring the existence of intergroup and intragroup racism. A contextual model for systematic studies of the biopsychosocial effects of perceived racism is then presented, along with recommendations for future research.

Given the historical and contemporary existence of racism in American society, one might suspect there would be an equally substantial literature examining the effects of racism on African Americans. Yet, research exploring the biological, psychological, and social effects of racism among African Americans is virtually nonexistent. The purpose of this article was threefold: (a) to provide a brief overview of how the concept of racism has been addressed in the scientific literature, (b) to review studies exploring the existence of intergroup and intragroup racism, and (c) to present a conceptual model for systematic studies of the biopsychosocial effects of perceived racism among African Americans. This article represents perhaps the first attempt to synthesize research examining perceptions of intergroup and intragroup racism and their biopsychosocial effects among African Americans.

Conceptualizations of Racism

Despite its ubiquity in everyday language, no consensus on the definition of racism has emerged from the scientific literature (Farley, 1988). In this article, *racism* is operationally defined as beliefs, attitudes, institutional arrangements, and acts that tend to denigrate individuals or groups because of phenotypic characteristics or ethnic group affiliation. Unlike other conceptualizations that describe racism

as a relationship between members of oppressed and non-oppressed groups, this more comprehensive definition of racism encompasses beliefs, attitudes, arrangements, and acts either held by or perpetuated by members of a different ethnic group (intergroup racism) and by members of the same ethnic group (intragroup racism).

Although numerous conceptualizations of racism have been used in the scientific literature, they can be placed into two broad categories: attitudinal or behavioral (Sigelman & Welch, 1991). Attitudinal racism and ethnic prejudice have both been used to represent attitudes and beliefs that denigrate individuals or groups because of phenotypic characteristics or ethnic group affiliation (Yetman, 1985). According to Yetman, behavioral racism (ethnic discrimination), in contrast, is any act of an individual or institution that denies equitable treatment to an individual or a group because of phenotypic characteristics or ethnic group affiliation.

Evidence of Racism

Reviews of the survey literature suggest that despite improvements in ethnic group attitudes among Caucasians over the last three decades (Schuman, Steeh, & Bobo, 1985), there remain "important signs of continued resistance to full equality of black Americans" (Jaynes & Williams, 1989). Examples include more objective findings of intergroup racism in higher education (Farrell & Jones, 1988), the restaurant industry (Schuman, Singer, Donovan, & Sellitz, 1983), housing rentals and sales (Yinger, 1995), automotive sales (Ayres, 1991), and hiring practices (Kirschenman & Neckerman, 1991), as well as more sub-

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jective experiences of intergroup racism reported by African Americans (Feagin, 1991; Mays, Coleman, & Jackson, 1996; Phillip, 1998; Sigelman & Welch, 1991; V. L. S. Thompson, 1996; Williams, Yu, Jackson, & Anderson, 1997).

Although research exploring intergroup racism abounds in the literature, relatively few studies have assessed the impact of intragroup racism among African Americans. Of the studies that have assessed the impact of intragroup racism among African Americans, the majority have focused on skin tone variations. For example, many African Americans once endorsed the idea that darker-skinned African Americans were inherently inferior to lighter-skinned African Americans (Gatewood, 1988; Okazawa-Rey, Robinson, & Ward, 1986). Additionally, African American fraternities, sororities, business and social organizations, churches, preparatory schools, and historically Black colleges and universities routinely excluded African Americans on the basis of skin tone and hair texture (Neal & Wilson, 1989; Okazawa-Rey et al., 1986). In summary, the available research evidence suggests that perceptions of both intergroup and intragroup racism have persisted and continue to exert a significant effect on the well-being of many African Americans (Ayres, 1991; Es-sed, 1991; Hughes & Hertel, 1990; Jaynes & Williams, 1989; Jones, 1997; Keith & Herring, 1991; Kinder & Mendelberg, 1995; Kirschenman & Neckerman, 1991; Neal & Wilson, 1989; Sears, 1991; Sigelman & Welch, 1991; V. L. S. Thompson, 1996; Yinger, 1995).

Biopsychosocial Effects of Perceived Racism in African Americans: A Contextual Model

Examining the effects of intergroup racism and intragroup racism in African Americans is warranted for at least three

important reasons. First, if exposure to racism is perceived as stressful, it may have negative biopsychosocial sequelae (N. B. Anderson, McNeilly, & Myers, 1991; Burchfield, 1979; Herd, 1991; James, 1993; Lazarus & Folkman, 1984; Selye, 1983) that might help explain intergroup differences in health outcomes (Dressler, 1991; Klag, Whelton, Coresh, Grim, & Kuller, 1991; U.S. Department of Health and Human Services, 1985). Second, differential exposure to and coping responses following perceptions of racism may help account for the wide within-group variability in health outcomes among African Americans. Third, if exposure to racism is among the factors related to negative health outcomes in African Americans, specific intervention and prevention strategies could be developed and implemented to lessen its deleterious impact. These strategies would provide a needed supplement to efforts aimed at reducing health disparities in American society.

Despite hypothesized links between perceptions of racism and health outcomes (Browman, 1996; Cooper, 1993; Jones, 1997; King & Williams, 1995; Klag et al., 1991; Krieger, Rowley, Herman, Avery, & Phillips, 1993; Krieger & Sidney, 1996; Landrine & Klonoff, 1996; Tyroler & James, 1978; Williams, Yu, Jackson, & Anderson, 1997), few studies have examined the effects of perceived racism within a comprehensive and empirically testable biopsychosocial model (see Figure 1). This proposed model is consistent with the conceptualizations of other researchers (e.g., Andersen, Kiecolt-Glaser, & Glaser, 1994; N. B. Anderson et al., 1991; Jorgensen, Johnson, Kolodziej, & Schreer, 1996) who have proposed relationships between biopsychosocial factors and specific health outcomes. Although unique in that it is tailored to apply to perceptions of racism, the model builds on the more general stress-coping model proposed by Lazarus and Folkman (1984).

The principal tenet of this proposed model is that the perception of an environmental stimulus as racist results in exaggerated psychological and physiological stress responses that are influenced by constitutional factors, socio-demographic factors, psychological and behavioral factors, and coping responses. Over time, these stress responses are posited to influence health outcomes. Furthermore, the perception of environmental stimuli as racist and ensuing coping responses are postulated to be a function of a complex interplay between an array of psychological, behavioral, constitutional, and sociodemographic factors. Although it is possible for psychological, behavioral, constitutional, and sociodemographic factors to influence coping responses directly, for simplicity of illustration these connections are not included in Figure 1. The remainder of this section is devoted to explicating each component of the model and highlighting its relevance to research on health outcomes in African Americans. Following the discussion of "environmental stimuli," the section is divided into subsections delineating the moderator and mediator variables in the proposed model. Consistent with the work of Baron and Kenny (1986), moderator variables are defined herein as factors that influence the direction or magnitude of the relationship between predictor and criterion vari-



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ables. Mediator variables, on the other hand, are operationalized herein as factors that may account, at least in part, for the relationship between predictor and criterion variables.

Environmental Stimuli

African Americans are disproportionately exposed to environmental stimuli that may be sources of chronic and acute stress (James, 1993; Outlaw, 1993; Sears, 1991; V. L. S. Thompson, 1996). The historical basis for many of these exposures has been experienced by few, if any, other ethnic groups to the extent it has by African Americans (James, 1993; Jones, 1997). A myriad of these stimuli (especially interpersonal) could be perceived as involving racism. For example, more than 50% of African Americans attribute substandard housing, lack of skilled labor and managerial jobs, and lower wages for African Americans to ethnic discrimination (Sigelman & Welch, 1991). Moreover, given that psychological and physiological stress responses are more sensitive to an individual's perception of stressfulness than objective demands (Burchfield, 1979; Matheny, Aycock, Pugh, Curlette, & Cannella, 1986), there is no a priori way of determining if an environmental stimulus will be perceived as racist by an individual (Adams & Dressler, 1988).

Distinguishing between chronic and acute sources of perceived racism may be particularly instructive, given that these two sources of stress may differentially predict self-reported health status (Williams, Yu, & Jackson, 1997). Moreover, the combined effects of chronic and acute perceptions have the potential to contribute to psychological and physiological sequelae that may be particularly toxic in African Americans (Cooper, 1993; Feagin, 1991; Sigelman & Welch, 1991). Therefore, perceived racism as a potential

source of stress should be viewed as having both chronic and acute dimensions.

Moderator Variables

Constitutional factors. Numerous constitutional factors are hypothesized to influence the relationship between exposure to environmental stimuli and health outcomes. For example, among many African Americans, skin tone has been associated with perceptions of ethnic discrimination (Keith & Herring, 1991; Udry, Bauman, & Chase, 1971), occupational status (Hughes & Hertel, 1990; Keith & Herring, 1991), and personal income (Keith & Herring, 1991). In addition to skin tone, family history of hypertension has been the focus of studies examining intergroup and intragroup differences in cardiovascular reactivity, resting blood pressure, and the prevalence of essential hypertension. Findings from studies examining the predictive utility of these markers to independently differentiate groups at varying levels of hypertension risk have been mixed (N. B. Anderson, Lane, Taguchi, & Williams, 1989; Hohn et al., 1983; Klag et al., 1991; Korol, Bergfeld, & McLaughlin, 1975; Lawler & Allen, 1981; Tyroler & James, 1978). A growing body of research suggests, however, that family history of hypertension and skin tone influence the development of hypertension indirectly. That is, these constitutional factors may interact with sociodemographic variables to increase the risk of negative health outcomes like hypertension (N. B. Anderson & Armstead, 1995; Ernst, Jackson, Robertson, Nevels, & Watts, 1997; Harburg, Gleiberman, Russell, & Cooper, 1991; Harburg, Gleiberman, Roeper, Schork, & Schull, 1978; Klag et al., 1991).

Sociodemographic factors. One sociodemographic factor that is particularly relevant to the proposed model is socioeconomic status (SES). SES is associated with perceptions of racism (Forman, Williams, & Jackson, 1997), ethnicity (Jaynes & Williams, 1989; Williams & Collins, 1995), and biopsychosocial functioning (N. B. Anderson & Armstead, 1995; Williams, Yu, Jackson, & Anderson, 1997). Research has suggested that the relationship between SES and the other components of this model is complex (Forman et al., 1997). That is, some research has found a positive relationship between SES and discrimination, whereas other studies suggest that SES is inversely related to experiences of discrimination among African Americans (Sigelman & Welch, 1991). It is plausible that the pattern of association between SES and racism among African Americans depends, in part, on what dimension of racism is assessed. For example, with measures that tap subtler expressions of racism, it is probable that higher SES African Americans report perceiving their environments as more discriminatory because of their tendency to negotiate environments where racism is less overt. Conversely, lower SES African Americans may be more sensitive to overt racism and as a result report more racism with measures that assess more overt expressions of racism and those that assess institutionally mediated dimensions of racism (e.g., access to good jobs).

Moreover, SES has been found to interact with eth-



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nicity, such that lower SES African Americans appear to be more vulnerable to some negative health outcomes than higher SES African Americans and many other ethnicity-SES groups. At least two explanations can be forwarded to help explain findings that African Americans at comparable educational levels have a higher prevalence of hypertension and all-cause mortality than do Caucasians (Pappas, Queen, Hadden, & Fisher, 1993). First, within SES groups, the distribution of wealth among African Americans and Caucasians is not comparable (N. B. Anderson & Armstead, 1995; Williams & Collins, 1995). Second, relative to Caucasians, African Americans report exposure to more stressors like racism and other unfair treatment (Krieger, 1990; Williams, Yu, Jackson, & Anderson, 1997). As a consequence, African Americans may have to utilize coping responses more frequently to deal with these added stressors than do Caucasians, thereby increasing the likelihood of both resource strain-behavioral exhaustion and psychological and physiological distress. It is probable therefore that lower SES African Americans are not only exposed to more chronic stressors than higher SES African Americans, but they may also have fewer resources with which to cope with these stressors, leading to more deleterious health outcomes (Feagin, 1991).

Relative to other components of this model, there has been less research exploring associations between perceived racism, other sociodemographic factors, and health outcomes. For example, age and gender may influence health outcomes through their association with the amount and frequency of potential stress exposure, the cognitive appraisal process, coping responses, and stress responses (N. B. Anderson & Armstead, 1995; Herd, 1991; Keith & Herring, 1991; Neal & Wilson, 1989). Adams and Dressler (1988) reported that age was inversely related to percep-

tions of racism and injustice in a community sample of African Americans. Although paradoxical, these authors reasoned that older African Americans may have come to accept discriminatory treatment and not label it as such. This subsample may be similar to those in Krieger (1990) and Krieger and Sidney (1996), who did not report being recipients of unfair treatment yet showed elevated resting blood pressure levels. Krieger and Sidney (1996) suggested that denial may be one important coping response members of ethnic minority groups may use in dealing with racism that may have health consequences.

Psychological and behavioral factors.

Depending on individual factors, any event could be perceived as stressful (Pearlin, 1989) and involving racism (Adams & Dressler, 1988). Various psychological and behavioral factors may influence how individuals perceive and respond to environmental stimuli (Adams & Dressler, 1988; V. R. Clark & Harrell, 1982; Pearlin, 1989; Wiebe & Williams, 1992). Additionally, these factors may "play a potential role in the presentation or treatment of almost every general medical condition" (American Psychiatric Association, 1994, p. 676). Type A behavior, cynical hostility, neuroticism, self-esteem, obsessive-compulsive disorder, hardiness, perceived control, and anger expression-suppression are among the psychological and behavioral factors that are postulated to influence the stress process, cardiovascular outcomes, and immune functioning (Adams & Dressler, 1988; Bandura, Taylor, & Williams, 1985; Everson, Goldberg, Kaplan, Julkunen, & Solonen, 1998; Larkin, Semenchuk, Frazer, Suchday, & Taylor, 1998; Miller, Dopp, Myers, Stevens, & Fahey, 1999; Pearlin, 1989; Wiebe & Williams, 1992). For example, research has suggested that of the usual ways by which African Americans cope with anger, the affective state most commonly reported to follow perceptions of racism (Bullock & Houston, 1987) is related to cardiovascular reactivity and resting blood pressure (Armstead, Lawler, Gorden, Cross, & Gibbons, 1989; Johnson & Browman, 1987). It remains to be determined if and how these psychological and behavioral factors influence the relationship between perceived racism and health status.

Mediator Variables

Racism as a perceived stressor. *Perceived racism* refers to the subjective experience of prejudice or discrimination. Therefore, perceived racism is not limited to those experiences that may "objectively" be viewed as representing racism. For example, subtler forms of racism include belief systems and symbolic behaviors that promulgate the ideology of "free will" (McConahay & Hough, 1976; Sears, 1991). Although the ideology of free will may not be inherently racist, Yetman (1985) remarked,

when applied to black Americans, the belief system of free will is racist in that it refuses to recognize or acknowledge the existence of external impingements and disabilities (such as prejudice and discrimination) and instead imputes the primary responsibility for black disadvantages to blacks themselves. (p. 15)



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Although many Caucasians who are proponents of free will may not view their beliefs or actions as racist, such beliefs and actions may be perceived as serious or threatening (e.g., involving racism) by some African Americans.

During the past 20 years, several self-report measures have been developed to assess perceived racism. These include scales by Allan-Claiborne and Taylor (1981), Barbarin (1996), Harrell (1997), Landrine and Klonoff (1996), McNeilly, Anderson, Armstead, et al. (1996), C. E. Thompson, Neville, Weathers, Poston, and Atkinson (1990), and Utsey and Ponterotto (1996). Although these scales vary in their multidimensionality, each one has the potential to facilitate empirical investigations that disentangle the complex relationship between ethnically relevant stressors and health outcomes.

Whereas other self-report measures of stress have been accepted widely (e.g., those assessing job strain, life events, and daily hassles), there may be a tendency to discount reports of racism simply because they involve a subjective component. Such a tendency to discount perceptions of racism as stressful is inconsistent with the stress literature, which highlights the importance of the appraisal process. For example, Lazarus and Folkman (1984) noted that it is both the individual's evaluation of the seriousness of an event and his or her coping responses that determine whether a psychological stress response will ensue. That is, the perception of demands as stressful is more important in initiating stress responses than objective demands that may or may not be perceived as stressful (Burchfield, 1985; Matheny et al., 1986). With this in mind, the initiation of psychological stress responses as a result of perceiving environmental stimuli as involving racism would qualify these stimuli as stressors.

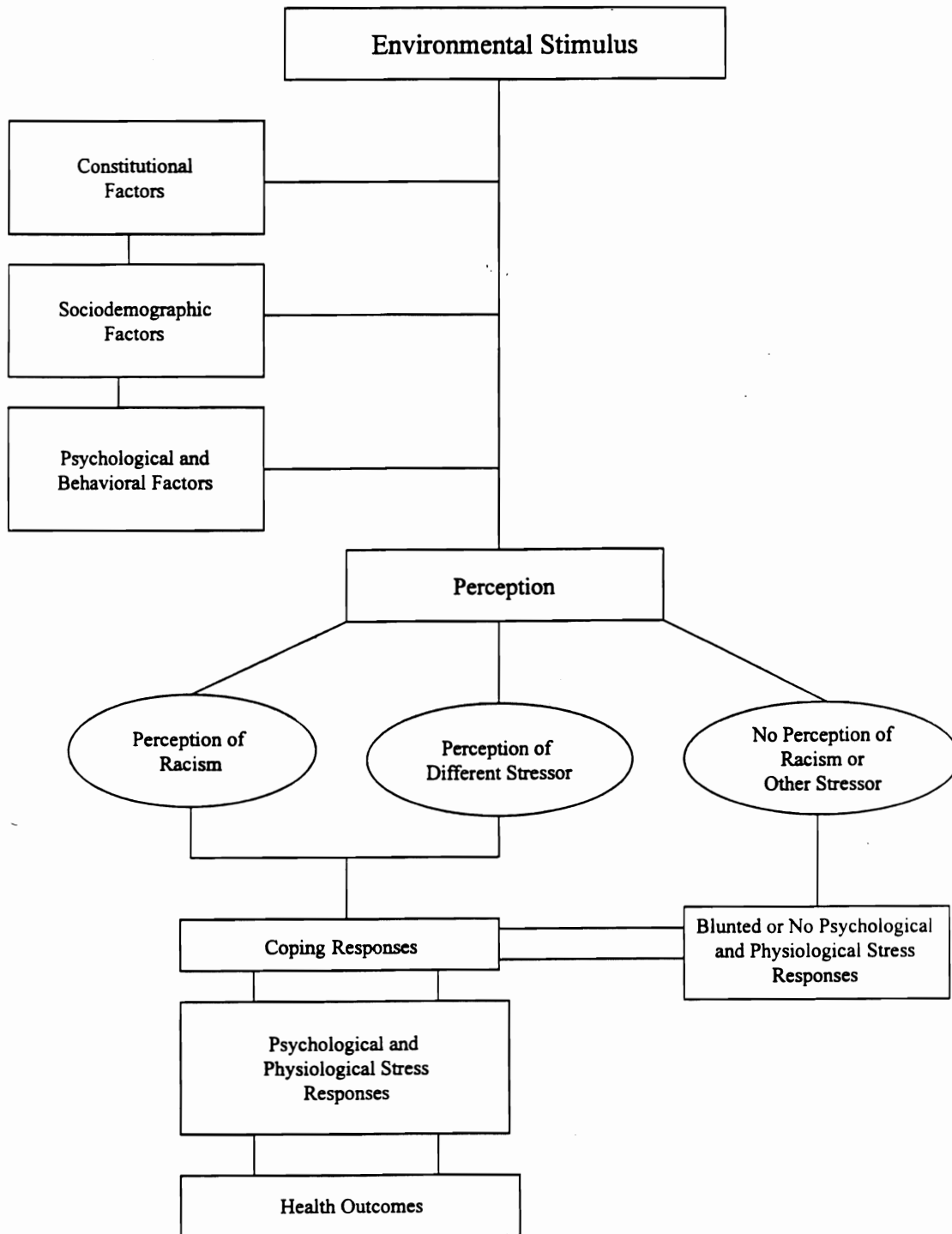
Coping responses. Even among African Americans who perceive certain stimuli as stressful, whether

ethnically based or not, there are likely to be wide individual differences in psychological and physiological stress responses. The magnitude and duration of these stress responses will depend on the availability and use of coping responses. Coping responses that do not attenuate stress responses are considered maladaptive and may negatively affect health (Burchfield, 1985; Clark & Harrell, 1982). That is, when maladaptive coping responses are used, the perception of an environmental event as racist will trigger psychological and physiological stress responses. If an individual fails to replace these maladaptive coping responses with more adaptive ones, this model further predicts a continued state of heightened psychological and physiological activity (Selye, 1976). A similar stress response pattern would be expected in African Americans who perceive the stimulus as a stressor without racist content.

Adaptive coping responses, on the other hand, are postulated to mitigate enduring psychological and physiological stress responses, thereby reducing the potentially untoward effects of racism on health. As such, it may be possible to identify coping responses that influence the relationship between perceived racism and stress responses. Both adaptive and maladaptive coping responses would be expected to influence the duration and intensity of psychological and physiological stress responses (Burchfield, 1979). A potential limitation of this model is that some individuals may not report perceiving any stressor or may inhibit the expression of psychological responses (e.g., anger) yet show exaggerated physiological responses to stimuli (Jorgensen, Gelling, & Kliner, 1992; Jorgensen et al., 1996; Ruggiero & Taylor, 1997; Sommers-Flanagan & Greenberg, 1989). To partially address this potential limitation, social desirability and repression measurements could be used to help identify individuals who exhibit this response pattern.

Coping responses to ethnically relevant stimuli have been conceptualized as general (e.g., Armstead et al., 1989; Clark & Harrell, 1982; Sutherland & Harrell, 1986–1987) or specific (e.g., Armstead et al., 1989; Bullock & Houston, 1987; Clark & Harrell, 1982; Krieger, 1990; Krieger & Sidney, 1996; Myers, Stokes, & Speight, 1989). *General coping responses* refer to strategies that are usually used to deal with stressful stimuli—irrespective of their nature. In the only published study to investigate the efficacy of general coping strategies as moderators of the perceived racism–cardiovascular reactivity relationship, Armstead et al. (1989) found that as Anger Out scores on the Framingham and Anger Expression scales increased, blood pressure levels decreased after viewing racist video scenes. Research has suggested that the effects of more general coping responses, such as “John Henryism” (James, Hartnett, & Kalsbeek, 1983), social support (McNeilly, Anderson, Robinson, et al., 1996), and religious participation (Jones, 1997), may be particularly relevant for African Americans and interact with sociodemographic factors to modify risk for negative health outcomes like elevated blood pressure (N. B. Anderson et al., 1991; James et al., 1983; James, Strogatz, Wing, & Ramsey, 1987).

Figure 1
A Contextual Model to Examine the Biopsychosocial Effects of Perceived Racism



Racism-specific coping responses refer to cognitions and behaviors used to mitigate the effects (e.g., psychological and physiological) of perceived racism. Although nu-

merous investigators have examined the relationship between general coping responses and health outcomes, few have sought to identify specific coping responses African

Americans use in response to perceptions of racism. Two notable exceptions include recent studies by McNeilly, Anderson, Armstead, et al. (1996) and Harrell (1997) that outlined a broad range of emotional and coping responses to racism and a method for measuring them. Given their recent addition to the literature, published research examining the efficacy of these coping measures as predictors of health outcomes does not yet exist. To date, only six published studies (Armstead et al., 1989; Clark & Harrell, 1982; Krieger, 1990; Krieger & Sidney, 1996; Myers et al., 1989; Williams, Yu, Jackson, & Anderson, 1997) have examined the relationship between racism-specific coping responses and physiological responses and health status.

The observed association between racism-specific coping responses and health outcomes varies depending on the outcome under consideration. For example, after adjusting for sociodemographic and psychological factors, Williams, Yu, Jackson, and Anderson (1997) found that passive and active coping responses to discrimination (including ethnic-group discrimination) were related to increased psychological distress, poorer well-being, and more chronic conditions among African Americans. In two of the laboratory studies, racism-specific coping responses were not related to cardiovascular responses to ethnically relevant stressors (Armstead et al., 1989; Myers et al., 1989). Conversely, Clark and Harrell (1982) found that scores on the "cognitive flexibility" dimension of a coping scale were positively associated with initial resting systolic blood pressure and time to recovery for diastolic blood pressure. Their findings suggest that individuals who use the cognitive flexibility style to cope with perceived racism may process the racist content of the stimulus longer than do individuals using more active coping responses.

Over time, chronic perceptions of racism coupled with more passive coping responses may lead to frequent increases in and prolonged activation of sympathetic functioning resulting in higher resting systolic blood pressure levels. Many authors have proposed that such chronic stress-induced sympathetic activation may be among the factors that lead to hypertension (for a review see Manuck, Kasprowicz, & Muldoon, 1990). For instance, Krieger (1990) found that African Americans women (45+ years old) who responded to unfair treatment (e.g., racism and gender discrimination) with passive coping responses (e.g., keeping quiet and accepting treatment) were 4.4 times more likely to have self-reported hypertension than African American women whose coping techniques were more active. Similarly, Krieger and Sidney (1996) found that among African American working class men and women, passive coping responses were associated with markedly higher resting blood pressure levels.

Additionally, the efficacy of various coping strategies in reducing the chronic and acute psychological and physiological effects of ethnically relevant stimuli may depend, in part, on the frequency of the perceived stressor and the context or setting in which racism is perceived. For example, although coping responses like projection and denial may be adaptive with acute stressors, they may be maladaptive when used to negotiate chronic stressors (Burch-

field, 1979; Jorgensen et al., 1992; Krieger & Sidney, 1996; Sommers-Flanagan & Greenberg, 1989). Similarly, whereas expressing emotional reactions to peers may be adaptive in some contexts, this approach may be maladaptive in others.

Psychological and physiological stress responses. Numerous psychological stress responses may follow perceptions of racism. These responses include anger, paranoia, anxiety, helplessness-hopelessness, frustration, resentment, and fear (Armstead et al., 1989; Bullock & Houston, 1987). Psychological stress responses may, in turn, influence the use of subsequent coping responses (Burchfield, 1979; James, 1993; Lazarus & Folkman, 1984; Pearlin, 1989). For example, perceptions of racism that engender anger may lead to coping responses that include anger suppression, hostility, aggression, verbal expression of the anger, or the use of alcohol or other substances to blunt angry feelings (Armstead et al., 1989; Cooper, 1993; Cornell, Peterson, & Richards, 1999; Grier & Cobbs, 1968; Harris, 1992; Novaco, 1985). These psychological responses are not necessarily independently occurring phenomena, given that responses to primary stressors may elicit prolonged psychological responsiveness and sociocultural adjustment (L. P. Anderson, 1991; Pearlin, 1989). For example, chronic feelings of helplessness-hopelessness may evoke feelings of frustration, depression, resentment, distrust, or paranoia (Fernando, 1984; Peterson, Maier, & Seligman, 1993; Seligman, 1975) that lead to passivity, overeating, avoidance, or efforts to gain control (Bullock & Houston, 1987).

Physiological responses following exposure to psychologically stressful stimuli most notably involve immune, neuroendocrine, and cardiovascular functioning (Andersen et al., 1994; Cacioppo, 1994; S. Cohen & Herbert, 1996; Herd, 1991). In the immune system, for example, two immune reactions (humoral and cellular) may be affected. In response to chronic stress, the adrenal gland produces hormones that suppress the activity of B- and T-lymphocytes, thereby preventing the body from destroying or neutralizing foreign substances (e.g., bacteria and viruses) and increasing vulnerability to disease (S. Cohen & Herbert, 1996). In one meta-analysis of the stress-immune literature, Herbert and Cohen (1993) found that chronic and interpersonal stressors are related to lower natural-killer cell activity. Research suggests that immune responses to these chronic and acute stressors are not transient (Stone, Valdimarsdottir, Katkin, Burns, & Cox, 1993). For example, in studies examining the chronic stress associated with caregiving and immune functioning, researchers have found that spouses who are caring for partners with Alzheimer's dementia show decreased cellular immunity and prolonged respiratory infections (Kiecolt-Glaser, Dura, Speicher, Trask, & Glaser, 1991) and decreased expression of the growth hormone mRNA (Wu et al., 1999). Results from immune-function tests on blood samples have also shown that laboratory-induced conflict among married couples is associated with lowered immune functioning that persists well after the experimental session (Kiecolt-Glaser et al., 1993). Additionally, it has recently

been demonstrated that stress-induced immune changes may slow the healing process (Kiecolt-Glaser, Marucha, Malarkey, Mercado, & Glaser, 1995). Although tentative, these studies suggest that perceived stress is related to decreases in immune functioning (e.g., lower helper T-cells, lower natural-killer cell cytotoxic activity, and higher antibody titers to the Epstein-Barr virus) that may increase susceptibility for an array of health outcomes (S. Cohen et al., 1998; S. Cohen, Tyrrell, & Smith, 1991; Kiecolt-Glaser & Glaser, 1995).

Stress-induced neuroendocrine responses include activation of the pituitary–adrenocortical and hypothalamic–sympathetic–adrenal medullary systems (Burchfield, 1979; Herd, 1991). Findings from human and animal studies have suggested that the activation of these systems results in numerous physiological changes. For example, in response to acute stressors, these changes include the release of antidiuretic hormone, prolactin, growth hormone, glucocorticoids, epinephrine, norepinephrine, adrenocorticotrophic hormone (which influences the production of cortisol via the adrenal gland), cortisol, and β -endorphin (Anisman, Kokkinidis, & Sklar, 1985; Herd, 1991; McCance, 1990). Concurrent with these neuroendocrine changes, there is an increase in cardiovascular activity. According to Herd (1991), the cardiovascular responses include “increased rate and force of cardiac contraction, skeletal muscle vasodilation, venoconstriction, splanchnic vasoconstriction, renal vasoconstriction, and decreased renal excretion of sodium” (p. 326). Upon repeated exposure to acute stressors, the magnitude and duration of these neuroendocrine and cardiovascular responses would depend, in part, on an individual’s ability to successfully cope with the stressor (Brandenberger, Follenius, Wittersheim, & Salame, 1980; Burchfield, 1979; F. Cohen & Lazarus, 1979; Light & Obrist, 1980; Ursin, Baade, & Levine, 1978).

Health outcomes. Psychological and physiological responses to perceptions of racism may, over time, be related to numerous health outcomes. For example, Fernando (1984) postulated that as a potential added stressor for many African Americans, perceived racism may influence the genesis of depression by (a) posing transient threats to self-esteem, (b) making the group’s failure to receive normative returns more salient, and (c) contributing to a sense of helplessness. Although some research has suggested that reports and expectations of discrimination are associated with depressive symptomatology among African Americans (McNeilly, Anderson, Robinson, et al., 1996) and adolescent immigrants (Rumbaut, 1994), other reports have questioned the validity of these discriminatory reports and expectations. For example, Taylor, Wright, and Ruggiero (1991) concluded that mental health problems like depression could affect perceptions of life experiences and lead individuals to perceive discriminatory practices that do not exist.

Although studies explicating the long-term health effects of perceived racism remain limited, there is a growing body of research in the more general stress literature that documents the relationship between stress and health. For example, stress has been linked to low birth weight and

infant mortality (James, 1993), depression (Kendler et al., 1995), the healing process (Kiecolt-Glaser et al., 1995), breast cancer survival (Spiegel, Bloom, Kraemer, & Gottheil, 1989), heart disease (Jiang et al., 1996; Kamarck & Jennings, 1991; Rozanski, Blumenthal, & Kaplan, 1999), mean arterial blood pressure changes (R. Clark & Armstead, in press), and chronic obstructive pulmonary disease (Narsavage & Weaver, 1994). Additionally, research suggests that exposure to stress is related to upper respiratory infections and the development of clinical colds (S. Cohen et al., 1991). There is some suggestion, however, that the duration of stress exposure moderates the relationship between stress exposure and cold susceptibility. For example, S. Cohen et al. (1998) found that exposure to chronic psychological stressors (lasting 1 month or longer)—not acute stressors—is related to cold susceptibility.

Although not all studies have found support for the hypothesized perceived racism–health status association (Browman, 1996), significant relationships between perceptions of racism and resting blood pressure (Krieger & Sidney, 1996) and subjective well-being (Jackson et al., 1996; V. L. S. Thompson, 1996) have been documented. In one multistage area probability sample of 1,106 African American and Caucasian adults in the Detroit metropolitan area, Williams, Yu, Jackson, and Anderson (1997) found that unfair treatment attributed to racial or ethnic discrimination and racial or ethnic discrimination over the lifetime predicted psychological distress, well-being, number of bed days, and chronic conditions for African Americans. Among Caucasians, racial or ethnic discrimination over the lifetime predicted psychological distress and well-being.

The focus of this article has been on the role of racism as a perceived stressor and its implications for health. It is also possible however, that racism may affect health even when it is not perceived as a stressor. For example, institutional racism (Jones, 1997; Williams, Yu, & Jackson, 1997) may reduce access to goods, services, and opportunities for African Americans in ways that have important health consequences. In a recent study, for example, it was found that ethnicity is a strong determinant of physicians’ recommendations for critical cardiac assessments for patients experiencing chest pain, even among patients with similar risk factors, clinical features, and economic resources (Schulman et al., 1999). In this instance, institutional racism in health care may have dire consequences for the health of African Americans—even when no individual racism may be perceived. Therefore, perceived racism may be one of several possible pathways by which racism may affect health.

Summary

Despite the different sampling schemes and data quantification methodologies and the paucity of studies, the results of the research reviewed in this section were generally consistent. The perception of racism usually resulted in psychological and physiological stress responses. To deal with the effects of perceived racism, African Americans were found to use various coping strategies. These strategies were associated with physiological reactivity and

health status. The research reviewed in this section does provide a basis for a stress and coping approach to the study of the effects of perceived racism.

Conclusions and Recommendations

The purpose of this article was to provide a discussion of the potential usefulness of studying the biopsychosocial effects of perceived racism within a stress and coping model. Research examining the psychological, physiological, and social effects of perceived racism were presented. Overall, research in this area is lacking, and the research that has been conducted is without conceptual and methodological cohesion. As a step toward advancing this field of study, a contextual model was presented that may serve as a guide for systematic investigations of perceived racism and its biopsychosocial concomitants and sequelae. On the basis of the proposed model, research examining the effects of ethnically relevant stressors like racism may contribute to a better understanding of interethnic and intraethnic group health disparities. Given that available research also suggests that non-African Americans not only perceive racism but that such perceptions also adversely affect their psychological well-being (Seráfica, Schwebel, Russell, Isaac, & Myers, 1990; Williams, Yu, Jackson, & Anderson, 1997), this stress and coping analysis could be expanded to include other populations. Interdisciplinary investigations, examining the following questions, are encouraged to broaden the knowledge base in this area.

1. What Is the Relationship Between Perceived Racism and Health Outcomes for African Americans?

Epidemiological investigations are needed to elucidate the relationship between perceived racism and the risk of maladies like hypertension, cardiovascular disease, infant mortality, low birth weight, cancer, depression, anxiety disorders, disruptive behavior disorders, and substance abuse and dependence.

2. What Are the Psychological and Physiological Concomitants of Perceived Racism?

Laboratory and ambulatory monitoring studies would be instrumental in identifying the sympathetic, immune, adrenocortical, and psychological responses that are associated with ethnically relevant stressors.

3. What Are Some of the General and Racism-Specific Responses Used in Response to Perceived Racism?

Psychophysiological, psychoneuroimmunological, and epidemiological studies are also needed to determine whether general and racism-specific coping responses are differentially effective in mitigating the effects of perceived racism.

4. Does the Context in Which Racism Is Perceived Modify Its Psychological and Physiological Effects?

Psychological and sociological investigations are needed to determine if the magnitude and duration of psychological

stress responses such as anger, avoidance, denial, passivity, aggression, hostility, helplessness, and assertiveness vary as a function of the setting in which racism is perceived and the subtlety of the racist stimuli. Psychophysiological and psychoneuroimmunological studies examining sympathetic, immune, and adrenocortical responses to stressors that involve blatant versus subtle racist stimuli are also needed.

5. What Other Factors Influence the Relationship Between Perceived Racism and Health Outcomes?

Further research is needed to determine if there are other factors that moderate or mediate the effects of perceived racism.

REFERENCES

- Adams, J. P., & Dressler, W. W. (1988). Perceptions of injustice in a Black community: Dimensions and variations. *Human Relations, 41*, 753-767.
- Allan-Claiborne, J. G., & Taylor, J. (1981). The racialistic incidents inventory: Measuring awareness of racialism. In O. A. Barbarin, P. R. Good, O. M. Pharr, & J. A. Siskind (Eds.), *Institutional racism and community competence* (pp. 172-178). Rockville, MD: U. S. Department of Health and Human Services.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Andersen, B. L., Kiecolt-Glaser, J. K., & Glaser, R. (1994). A biobehavioral model of cancer stress and disease course. *American Psychologist, 49*, 389-404.
- Anderson, L. P. (1991). Acculturative stress: A theory of relevance to Black Americans. *Clinical Psychology Review, 11*, 685-702.
- Anderson, N. B., & Armstead, C. A. (1995). Toward understanding the association of socioeconomic status and health: A new challenge for the biopsychosocial approach. *Psychosomatic Medicine, 57*, 213-225.
- Anderson, N. B., Lane, J. D., Taguchi, F., & Williams, R. B., Jr. (1989). Patterns of cardiovascular responses to stress as a function of race and parental hypertension in men. *Health Psychology, 8*, 525-540.
- Anderson, N. B., McNeilly, M., & Myers, H. (1991). Autonomic reactivity and hypertension in Blacks: A review and proposed model. *Ethnicity and Disease, 1*, 154-170.
- Anisman, H., Kokkinidis, L., & Sklar, L. S. (1985). Neurochemical consequences of stress: Contributions of adaptive processes. In S. R. Burchfield (Ed.), *Stress: Psychological and physiological interactions* (pp. 67-98). New York: Hemisphere.
- Armstead, C. A., Lawler, K. A., Gorden, G., Cross, J., & Gibbons, J. (1989). Relationship of racial stressors to blood pressure responses and anger expression in Black college students. *Health Psychology, 8*, 541-556.
- Ayres, I. (1991). Fair driving: Gender and race discrimination in bargaining for a new car. *American Economic Review, 85*, 304-321.
- Bandura, A., Taylor, C. B., & Williams, S. L. (1985). Catecholamine secretion as a function of perceived coping self-efficacy. *Journal of Consulting and Clinical Psychology, 53*, 406-414.
- Barbarin, O. A. (1996). The IRS: Multidimensional measurement of institutional racism. In R. L. Jones (Ed.), *Handbook of tests and measurements for Black populations* (Vol. 2, pp. 375-398). Hampton, VA: Cobb and Henry.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.
- Brandenberger, G., Follenius, M., Wittersheim, G., & Salame, P. (1980). Plasma catecholamines and pituitary adrenal hormones related to mental task demand under quiet and noise conditions. *Biological Psychology, 10*, 239-252.

- Browman, C. L. (1996). The health consequences of racial discrimination: A study of African Americans. *Ethnicity and Disease, 6*, 148-153.
- Bullock, S. C., & Houston, E. (1987). Perceptions of racism by Black medical students attending White medical schools. *Journal of the National Medical Association, 79*, 601-608.
- Burchfield, S. R. (1979). The stress response: A new perspective. *Psychosomatic Medicine, 41*, 661-672.
- Burchfield, S. R. (1985). Stress: An integrative framework. In S. R. Burchfield (Ed.), *Stress: Psychological and physiological interactions* (pp. 381-394). New York: Hemisphere.
- Cacioppo, J. (1994). Social neuroscience: Autonomic, neuroendocrine, and immune responses to stress. *Psychophysiology, 31*, 113-128.
- Clark, R., & Armstead, C. A. (in press). Family conflict predicts blood pressure changes in African American adolescents. *Journal of Adolescence*.
- Clark, V. R., & Harrell, J. P. (1982). The relationship among Type A behavior, styles used in coping with racism, and blood pressure. *Journal of Black Psychology, 8*, 89-99.
- Cohen, F., & Lazarus, R. S. (1979). Coping with the stresses of illness. In G. S. Stone, F. Cohen, & N. E. Adler (Eds.), *Health psychology: A handbook* (pp. 77-112). San Francisco: Jossey-Bass.
- Cohen, S., Frank, E., Doyle, W. J., Skoner, D. P., Rabin, B. S., & Gwaltney, J. M., Jr. (1998). Types of stressors that increase susceptibility to the common cold in healthy adults. *Health Psychology, 17*, 214-223.
- Cohen, S., & Herbert, T. B. (1996). Health psychology: Psychological factors and physical disease from the perspective of human psychoneuroimmunology. *Annual Review of Psychology, 47*, 113-142.
- Cohen, S., Tyrrell, D. A. J., & Smith, A. P. (1991). Psychological stress and susceptibility to the common cold. *New England Journal of Medicine, 325*, 606-612.
- Cooper, R. S. (1993). Health and the social status of Blacks in the United States. *Annals of Epidemiology, 3*, 137-144.
- Cornell, D. G., Peterson, C. S., & Richards, H. (1999). Anger as a predictor of aggression among incarcerated adolescents. *Journal of Consulting and Clinical Psychology, 67*, 108-115.
- Dressler, W. W. (1991). Social class, skin color, and arterial blood pressure in two societies. *Ethnicity and Disease, 1*, 60-77.
- Ernst, F. A., Jackson, I., Robertson, R. M., Nevels, H., & Watts, E. (1997). Skin tone, hostility, and blood pressure in young normotensive African Americans. *Ethnicity and Disease, 7*, 34-40.
- Essed, P. (1991). *Everyday racism*. Claremont, CA: Hunter House.
- Everson, S. A., Goldberg, D. E., Kaplan, G. A., Julkunen, J., & Solonen, J. T. (1998). Anger expression and incident hypertension. *Psychosomatic Medicine, 60*, 730-735.
- Farley, J. E. (1988). Orientation: Basic terms and concepts. In *Majority-minority relations* (2nd ed., pp. 1-11). Englewood Cliffs, NJ: Prentice Hall.
- Farrell, W. C., Jr., & Jones, C. K. (1988). Recent racial incidents in higher education: A preliminary perspective. *The Urban Review, 20*, 211-226.
- Feagin, J. R. (1991). The continuing significance of race: Antiracial discrimination in public places. *American Sociological Review, 56*, 101-116.
- Fernando, S. (1984). Racism as a cause of depression. *International Journal of Social Psychiatry, 30*, 41-49.
- Forman, T. A., Williams, D. R., & Jackson, J. S. (1997). Race, place, and discrimination. *Perspectives on Social Problems, 9*, 231-261.
- Gatewood, W. B., Jr. (1988). Aristocrats of color: South and North, the Black elite, 1880-1920. *Journal of Southern History, 54*, 3-20.
- Grier, W. H., & Cobbs, P. M. (1968). *Black rage*. New York: Basic Books.
- Harburg, E., Gleiberman, L., Roepert, P., Schork, M. A., & Schull, W. J. (1978). Skin color, ethnicity, and blood pressure in Detroit Blacks. *American Journal of Public Health, 68*, 1177-1183.
- Harburg, E., Gleiberman, L., Russell, M., & Cooper, M. L. (1991). Anger-coping styles and blood pressure in Black and White males: Buffalo, New York. *Psychosomatic Medicine, 53*, 153-164.
- Harrell, S. P. (1997). *The Racism and Life Experiences Scales (RaLES)*. Unpublished manuscript, California School of Professional Psychology, Los Angeles.
- Harris, M. B. (1992). Beliefs about how to reduce anger. *Psychological Reports, 70*, 203-210.
- Herbert, T. B., & Cohen, S. (1993). Stress and immunity in humans: A meta-analytic review. *Psychosomatic Medicine, 55*, 364-379.
- Herd, J. A. (1991). Cardiovascular responses to stress. *Physiological Reviews, 71*, 305-330.
- Hohn, A. R., Riopel, D. A., Keil, J. E., Loadholt, C. B., Margolius, H. S., Halushka, P. V., Privitera, P. J., Webb, J. G., Medley, E. S., Schuman, S. H., Rubin, M. I., Pantell, R. H., & Braunstein, M. L. (1983). Childhood familial and racial differences in physiologic and biochemical factors related to hypertension. *Hypertension, 5*, 56-70.
- Hughes, M., & Hertel, B. R. (1990). The significance of color remains: A study of life chances, mate selection, and ethnic consciousness among Black Americans. *Social Forces, 68*, 1105-1120.
- Jackson, J. S., Brown, T. N., Williams, D. R., Torres, M., Sellers, S. L., & Brown, K. (1996). Racism and the physical and mental health status of African Americans: A thirteen year national panel study. *Ethnicity and Disease, 6*, 132-147.
- James, S. A. (1993). Racial and ethnic differences in infant mortality and low birth weight: A psychosocial critique. *Annals of Epidemiology, 3*, 130-136.
- James, S. A., Hartnett, S. A., & Kalsbeek, W. D. (1983). John Henryism and blood pressure differences among black men. *Journal of Behavioral Medicine, 6*, 259-278.
- James, S. A., Strogatz, D. S., Wing, S. B., & Ramsey, D. L. (1987). Socioeconomic status, John Henryism, and hypertension in Blacks and Whites. *American Journal of Epidemiology, 126*, 664-673.
- Jaynes, G. D., & Williams, R. M., Jr. (1989). *A common destiny: Blacks and American society*. Washington, DC: National Academic Press.
- Jiang, W., Babyak, M., Krantz, D. S., Waugh, R. A., Coleman, R. E., Hanson, M. M., Frid, D. J., McNulty, S., Morris, J. J., O'Connor, C. M., & Blumenthal, J. A. (1996). Mental stress-induced myocardial ischemia and cardiac events. *Journal of the American Medical Association, 275*, 1651-1656.
- Johnson, E. H., & Browman, C. L. (1987). The relationship of anger expression to health problems among Black Americans in a national survey. *Journal of Behavioral Medicine, 10*, 103-116.
- Jones, J. M. (1997). *Prejudice and racism* (2nd ed.). New York: McGraw-Hill.
- Jorgensen, R. S., Gelling, P. D., & Kliner, L. (1992). Patterns of social desirability and anger in young men with a parental history of hypertension: Association with cardiovascular activity. *Health Psychology, 11*, 403-412.
- Jorgensen, R. S., Johnson, B. T., Kolodziej, M. E., & Schreer, G. E. (1996). Elevated blood pressure and personality: A meta-analytic review. *Psychological Bulletin, 120*, 293-320.
- Kamarck, T., & Jennings, J. R. (1991). Biobehavioral factors in sudden cardiac death. *Psychological Bulletin, 109*, 42-75.
- Keith, V. M., & Herring, C. (1991). Skin tone and stratification in the Black community. *American Journal of Sociology, 97*, 760-778.
- Kendler, K. S., Kessler, R. C., Walters, E. E., MacLean, C., Neale, M. C., Heath, A. C., & Eaves, L. J. (1995). Stressful life events, genetic liability, and onset of an episode of major depression in women. *American Journal of Psychiatry, 152*, 833-842.
- Kiecolt-Glaser, J. K., Dura, J. R., Speicher, C. E., Trask, O. J., & Glaser, R. (1991). Spousal caregivers of dementia victims: Longitudinal changes in immunity and health. *Psychosomatic Medicine, 53*, 345-362.
- Kiecolt-Glaser, J. K., & Glaser, R. (1995). Psychoneuroimmunology and health consequences: Data and shared mechanisms. *Psychosomatic Medicine, 57*, 269-274.
- Kiecolt-Glaser, J. K., Malarkey, W. B., Chee, M., Newton, T., Cacioppo, J. T., Mao, H., & Glaser, R. (1993). Negative behavior during marital conflict is associated with immunological down-regulation. *Psychosomatic Medicine, 55*, 395-409.
- Kiecolt-Glaser, J. K., Marucha, P. T., Malarkey, W. B., Mercado, A. M., & Glaser, R. (1995, November 4). Slowing of wound healing by psychological stress. *Lancet, 346*, 1194-1196.
- Kinder, D. R., & Mendelberg, T. (1995). Cracks in American apartheid: The political impact of prejudice among desegregated whites. *Journal of Politics, 57*, 402-424.
- King, G., & Williams, D. R. (1995). Race and health: A multi-dimensional approach to African American health. In B. C. Amick, S. Levine, D. C.

- Walsh, & A. Tarlov (Eds.), *Society and health* (pp. 93–130). New York: Oxford University Press.
- Kirschenman, J., & Neckerman, K. M. (1991). We'd love to hire them, but . . . : The meaning of race for employers. In C. Jenkins & P. E. Peterson (Eds.), *The urban underclass* (pp. 203–232). Washington, DC: Brookings Institution.
- Klag, M. J., Whelton, P. K., Coresh, J., Grim, C. E., & Kuller, L. H. (1991). The association of skin color with blood pressure in U.S. Blacks with low socioeconomic status. *Journal of the American Medical Association*, *265*, 599–602.
- Korol, B., Bergfeld, G. R., & McLaughlin, L. J. (1975). Skin color and autonomic nervous system measures. *Physiology and Behavior*, *14*, 575–578.
- Krieger, N. (1990). Racial and gender discrimination: Risk factors for high blood pressure? *Social Science Medicine*, *12*, 1273–1281.
- Krieger, N., Rowley, D. L., Herman, A. A., Avery, B., & Phillips, M. T. (1993). Racism, sexism, and social class: Implications for studies of health, disease, and well-being. *American Journal of Preventive Medicine*, *9*, 82–122.
- Krieger, N., & Sidney, S. (1996). Racial discrimination and blood pressure: The CARDIA Study of young Black and White adults. *American Journal of Public Health*, *86*, 1370–1378.
- Landrine, H., & Klonoff, E. A. (1996). The Schedule of Racist Events: A measure of racial discrimination and a study of its negative physical and mental health consequences. *Journal of Black Psychology*, *22*, 144–168.
- Larkin, K. T., Semenchuk, E. M., Frazer, N. L., Suchday, S., & Taylor, R. L. (1998). Cardiovascular and behavioral response to social confrontation: Measuring real-life stress in the laboratory. *Annals of Behavioral Medicine*, *20*, 294–301.
- Lawler, K. A., & Allen, M. T. (1981). Risk factors for hypertension in children: Their relationship to psychophysiological responses. *Journal of Psychosomatic Research*, *23*, 199–204.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Light, K. C., & Obrist, P. A. (1980). Cardiovascular response to stress: Effects of opportunity to avoid shock, shock experience, and performance feedback. *Psychophysiology*, *17*, 243–252.
- Manuck, S., Kasprovicz, A., & Muldoon, M. (1990). Behaviorally-evoked cardiovascular reactivity and hypertension: Conceptual issues and potential associations. *Annals of Behavioral Medicine*, *12*, 17–29.
- Matheny, K. B., Aycocock, D. W., Pugh, J. L., Curlette, W. L., & Cannella, K. A. S. (1986). Stress coping: A qualitative and quantitative synthesis with implications for treatment. *Counseling Psychologist*, *14*, 499–549.
- Mays, V. M., Coleman, L. M., & Jackson, J. S. (1996). Perceived race-based discrimination, employment status, and job stress in a national sample of Black women: Implications for health outcomes. *Journal of Occupational Health Psychology*, *1*, 319–329.
- McCance, K. L. (1990). Stress and disease. In K. L. McCance & S. E. Huether (Eds.), *Pathophysiology: The biologic basis for disease in adults and children* (pp. 279–293). St. Louis, MO: C. V. Mosby.
- McConahay, J. B., & Hough, J. C. (1976). Symbolic racism. *Journal of Social Issues*, *32*, 23–45.
- McNeilly, M. D., Anderson, N. B., Armstead, C. A., Clark, R., Corbett, M. O., Robinson, E. L., Pieper, C. F., & Lipisto, M. (1996). The Perceived Racism Scale: A multidimensional assessment of the perception of White racism among African Americans. *Racism and Health, Ethnicity and Disease*, *6*, 154–166.
- McNeilly, M., Anderson, N. B., Robinson, E. F., McManus, C. F., Armstead, C. A., Clark, R., Pieper, C. F., Simons, C., & Saulter, T. D. (1996). The convergent, discriminant, and concurrent criterion validity of the perceived racism scale: A multidimensional assessment of White racism among African Americans. In R. L. Jones (Ed.), *Handbook of tests and measurements for Black populations* (Vol. 2, pp. 359–374). Hampton, VA: Cobb and Henry.
- Miller, G. E., Dopp, J. M., Myers, H. F., Stevens, S. Y., & Fahey, J. L. (1999). Psychosocial predictors of natural killer cell mobilization during marital conflict. *Health Psychology*, *18*, 262–271.
- Myers, L. J., Stokes, D. R., & Speight, S. L. (1989). Physiological responses to anxiety and stress: Reactions to oppression, galvanic skin potential, and heart rate. *Journal of Black Studies*, *20*, 80–96.
- Narsavage, G. L., & Weaver, T. E. (1994). Physiological status, coping, and hardiness as predictors of outcomes in chronic obstructive pulmonary disease. *Nursing Research*, *43*, 90–94.
- Neal, A. M., & Wilson, M. L. (1989). The role of skin color and features in the Black community: Implications for Black women and therapy. *Clinical Psychology Review*, *9*, 323–333.
- Novaco, R. W. (1985). Anger and its therapeutic regulation. In M. A. Chesney & R. Rosenman (Eds.), *Anger and hostility in cardiovascular and behavioral disorders* (pp. 203–226). New York: Hemisphere/McGraw-Hill.
- Okazawa-Rey, M., Robinson, T., & Ward, J. V. (1986). Black women and the politics of skin color and hair. *Women's Studies Quarterly*, *14*, 13–14.
- Outlaw, F. H. (1993). Stress and coping: The influence of racism on the cognitive appraisal processing of African Americans. *Issues in Mental Health Nursing*, *14*, 399–409.
- Pappas, G., Queen, S., Hadden, W., & Fisher, G. (1993). The increasing disparity and mortality between socioeconomic groups in the United States, 1960 and 1986. *New England Journal of Medicine*, *329*, 103–109.
- Pearlin, L. I. (1989). The sociological study of stress. *Journal of Health and Social Behavior*, *30*, 241–256.
- Peterson, C., Maier, S. F., & Seligman, M. E. P. (1993). *Learned helplessness: A theory for the age of personal control*. New York: Oxford University Press.
- Phillip, S. F. (1998). African-American perceptions of leisure, racial discrimination, and life satisfaction. *Perceptual and Motor Skills*, *87*, 1418.
- Rozanski, A., Blumenthal, J. A., & Kaplan, J. (1999). Impact of psychological factors on the pathogenesis of cardiovascular disease and implications for therapy. *Circulation*, *99*, 2192–2217.
- Ruggiero, K. M., & Taylor, D. M. (1997). Why minority group members perceive or do not perceive the discrimination that confronts them: The role of self-esteem and perceived control. *Journal of Personality and Social Psychology*, *72*, 373–389.
- Rumbaut, R. G. (1994). The crucible within: Ethnic identity, self-esteem, and segmented assimilation among children of immigrants. *International Migration Review*, *28*, 748–794.
- Schulman, K. A., Berlin, J. A., Harless, W., Kerner, J. F., Sistrunk, S., Gersh, B. J., Dube, R., Taleghani, C. K., Burke, J. E., Williams, S., Eisenberg, J. M., & Escarce, J. J. (1999). The effects of race and sex on physicians' recommendations for cardiac catheterization. *New England Journal of Medicine*, *340*, 618–626.
- Schuman, H., Singer, E., Donovan, R., & Sellitz, C. (1983). Discriminatory behavior in New York restaurants: 1950 and 1981. *Social Indicators Research*, *13*, 69–83.
- Schuman, H., Steeh, C., & Bobo, L. (1985). *Racial attitudes in America*. Cambridge, MA: Harvard University Press.
- Sears, D. O. (1991). Symbolic racism. In P. A. Katz & D. A. Taylor (Eds.), *Eliminating racism: Profiles in controversy* (pp. 53–84). New York: Plenum.
- Seligman, M. E. P. (1975). *Helplessness: On depression, development, and death*. San Francisco: W. H. Freeman.
- Selye, H. (1976). *The stress of life*. New York: McGraw-Hill.
- Selye, H. (1983). The stress concept: Past, present, and future. In C. L. Cooper (Ed.), *Stress research* (pp. 1–20). New York: Wiley.
- Serafica, F. C., Schwebel, A. I., Russell, R. K., Isaac, P. D., & Myers, L. B. (Eds.). (1990). *Mental health of ethnic minorities*. New York: Praeger.
- Sigelman, L., & Welch, S. (1991). *Black Americans' views of racial inequality: The dream deferred*. New York: Cambridge University Press.
- Sommers-Flanagan, J., & Greenberg, R. P. (1989). Psychosocial variables and hypertension: A new look at an old controversy. *Journal of Nervous and Mental Disease*, *177*, 15–24.
- Spiegel, D., Bloom, H. C., Kraemer, J. R., & Gotthel, E. (1989, October 14). Effect of psychosocial treatment on survival of patients with metastatic cancer. *The Lancet*, *2*, 888–901.
- Stone, A. A., Valdimarsdottir, H. B., Katkin, E. S., Burns, J., & Cox, D. S. (1993). Effects of mental stressors on mitogen-induced lymphocyte responses in the laboratory. *Psychology and Health*, *8*, 269–284.
- Sutherland, M. E., & Harrell, J. P. (1986–1987). Individual differences in

- physiological responses to fearful, racially noxious, and neutral imagery. *Imagination, Cognition and Personality*, 6, 133-150.
- Taylor, D. M., Wright, S. C., & Ruggiero, K. (1991). The personal/group discrimination discrepancy: Responses to experimentally induced personal and group discrimination. *Journal of Social Psychology*, 131, 847-858.
- Thompson, C. E., Neville, H., Weathers, P. L., Poston, W. C., & Atkinson, D. R. (1990). Cultural mistrust and racism reaction among African-American students. *Journal of College Student Development*, 31, 162-168.
- Thompson, V. L. S. (1996). Perceived experiences of racism as stressful life events. *Community Mental Health Journal*, 32, 223-233.
- Tyroler, H. A., & James, S. A. (1978). Blood pressure and skin color. *American Journal of Public Health*, 68, 1170-1172.
- Udry, J. R., Bauman, K. E., & Chase, C. (1971). Skin color, status, and mate selection. *American Journal of Sociology*, 76, 722-733.
- Ursin, H., Baade, E., & Levine, S. (Eds.). (1978). *Psychobiology of stress: A study of coping men*. New York: Academic.
- U.S. Department of Health and Human Services. (1985). *Report of the Secretary's task force on Black & minority health*. Washington, DC: U.S. Government Printing Office.
- Utsey, S. O., & Ponterotto, J. G. (1996). Development and validation of the Index of Race-Related Stress (IRRS). *Journal of Counseling Psychology*, 43, 490-501.
- Wiebe, D. J., & Williams, P. G. (1992). Hardiness and health: A social psychophysiological perspective on stress and adaptation. *Journal of Social and Clinical Psychology*, 11, 238-262.
- Williams, D. R., & Collins, C. (1995). Socioeconomic and racial differences in health. *Annual Review of Sociology*, 21, 349-386.
- Williams, D. R., Yu, Y., & Jackson, J. (1997, July). *The costs of racism: Discrimination, race, and health*. Paper presented at the joint meeting of the Public Health Conference on Records and Statistics and Data User's Conference, Washington, DC.
- Williams, D. R., Yu, Y., Jackson, J., & Anderson, N. (1997). Racial differences in physical and mental health: Socioeconomic status, stress, and discrimination. *Journal of Health Psychology*, 2, 335-351.
- Wu, H., Wang, J., Cacioppo, J. T., Glaser, R., Kiecolt-Glaser, J. K., & Malarkey, W. B. (1999). Chronic stress associated with spousal caregiving of patients with Alzheimer's dementia is associated with down regulation of B-lymphocyte GH mRNA. *Journals of Gerontology: Series A, Biological Sciences and Medical Sciences*, 54, 212-215.
- Yetman, N. (1985). Introduction: Definitions and perspectives. In N. Yetman (Ed.), *Majority and minority: The dynamics of race and ethnicity in American life* (4th ed., pp. 1-20). Boston: Allyn & Bacon.
- Yinger, J. (1995). *Closed doors, opportunities lost: The continuing costs of housing discrimination*. New York: Sage.