Racial Discrimination and the Physical Health of Black Americans: Review of the Literature on Community Studies of Race and Health

Carl V. Hill, MPH, Program for Research on Black Americans, University of Michigan

Rashid S. Njai, BS, Program for Research on Black Americans, University of Michigan

Harold W. Neighbors, PhD, Program for Research on Black Americans, University of Michigan

David R. Williams, PhD, MPH, Program for Research on Black Americans, University of Michigan

James S. Jackson, PhD, Program for Research on Black Americans, University of Michigan

> "It is utterly exhausting being black in America – physically, mentally, and emotionally... there is no respite or escape from your badge of color."
>
> -Marian Wright Edelman[42]

Introduction

In the United States, racial disparities in health have been established and well documented.[1,2] Many investigators argue that racial disparities in health result from discriminatory economic, political, and legal policies that worsen the health of black Americans.[3] In this regard, black Americans are relegated to inferior education, inadequate housing, less employment and lower income, all of which lead to a poorer quality of life compared to other race/ethnic groups. Central to the relative health disadvantage of black Americans is the premise that oppression results in harsh environmental conditions that expose black Americans to increased stress over the entire lifecourse.

One such stressor is racial discrimination. Racial discrimination "involves harmful and degrading beliefs and actions expressed and implemented by both institutions and individuals".[4] Studies have shown that black Americans traditionally suffer racial discrimination in housing,[5] interpersonal interactions,[6] and employment.[7] In essence, black Americans experience policies and practices that are embedded in social and organizational structures, which lead to unfair treatment and ultimately chronic, insti-

tutional racial discrimination.[8] Past studies have shown that black Americans experience overcrowded accommodations, have lower educational attainment, have lower incomes and experience longer periods of unemployment.[8,9] In addition, black Americans also perceive the existence of unfair treatment based on race. Different than institutional racial discrimination, these experiences are usually easy to recall because of their profound effect on individual quality of life. Many black Americans perceive these negative social circumstances as a direct result of individual acts of racial discrimination.[9]

There are methodological issues raised by studies of racial discrimination and physical health among black Americans that require attention.[10] First, the actual acknowledgement of racial discrimination as a measurable concept has not been widely accepted. Some have suggested that the words "racial discrimination" and "perceived" be consistently linked as if to imply that any experience of racial discrimination is purely a result of individual perception with no basis in actual experience or institutional, structural arrangements. While it is indeed the case that the vast majority of data on the relationship of racial discrimination to health are based on respondent self-report, this is true of many concepts used to understand epidemiologic patterns of morbidity and mortality. Thus, it is not clear why the concept of discrimination has been singled out for such scrutiny. We suspect it is due to the sensitive political nature of acknowledging explicitly, and empirically, the continued existence of discrimination based on race; a fact that many would rather not accept and ultimately address. With this stated, it is important that we subject the development of racial discrimination measures to the same level of methodological rigor we reserve for all constructs. It is crucial that these measures are validated and that the effects of potential confounders such as neuroticism and social desirability be taken in to account.[10]

Measuring Discrimination

Discriminatory practices based on race can be extremely subtle, and often take the form of activities that are difficult to identify and measure.[11] Moreover, the effects of subtle racial discrimination may be attributed, mistakenly, to some other explanation. For instance, black Americans who experience subtle racial discrimination may not fully appreciate the racial basis of the unfair treatment they have experienced.[12] Instead, they may assume that a negative outcome is a result of their own individual shortcomings. As a result, theoretically, many experiences of racial discrimination could go unreported. Since numerous policies exist that admonish and punish overt racially discriminatory activities, this subtle variety may be the most prevalent type of racial discrimination.[13]

Therefore, the central issue in examining the relationship between racial discrimination

and physical health among black Americans is how perceived racial discrimination is actually measured. Chronic, daily experiences with discriminatory actions, policies and behaviors may be measured by focusing on discrete examples of racial discrimination.[14, 16] Individuals may also experience acute, key events during their lifetimes that are identified as racially motivated. These events, while not routine, serve as key indicators of the actual experience of being affected by unfair treatment based on race.[15, 16] Pivotal to the measurement of acute discrimination is the recognition that these events are exclusive, and should be assessed in this way when conducting research. While chronic, daily experiences may be measured by assessing an inventory of past experiences, measuring acute discriminatory acts must allow for acknowledging specific experiences that may not be related to each other. Thus, when assessing perceived racial discrimination, the methodological process must distinguish between chronic and acute experiences, and measure each concept appropriately.[16]

To validate a measure of racial discrimination, psychometric results should be provided to detail how well the measure is capturing the actual concept.[1, 10] Techniques such as test-retest convergence stability, factor analysis, and Cronbach's alpha are all techniques that this research field needs to employ more often. However, some aspects of psychometric testing, such as a measure of internal consistency may not be applicable for measures of acute racial discrimination. Given that some experiences of discrimination are not predictive of other discriminatory acts, correlations among these items should not necessarily be expected.

Racial Discrimination and Physical Health

Racial discrimination influences the physical health outcomes of black Americans in multiple pathways. Initially, institutional racial discrimination may affect the actual living conditions of black Americans and lead to environmental deprivation. This influences the presence and quality of health care, and introduces various stressors for black Americans.[8, 17] As a result, some black Americans may adopt behavioral coping responses such as poor nutritional habits or substance abuse that are detrimental to health. Moreover, the perception of racial discrimination also invokes behavioral coping responses such as cigarette smoking or alcohol use, which increase risks to chemical dependency, and various forms of cancer.[18, 20] The individual perception of racial discrimination may also alter negatively the quality of life of black Americans. In this regard, persons perceiving racial discrimination may develop low levels of life satisfaction and personal happiness because of environmental demands that exceed individual coping capacity.[21] In fact, these stressors may also invoke intermediate physiologic responses such as elevated blood pressure, or more long-term ramifications such as the development of various forms of cardiovascular disease. [11, 15, 16]

Some evidence suggests that the stress of discrimination can lead to elevated blood

pressure, cardiovascular disease and other health outcomes. For example, Krieger[9] found that the perceptions of racial discrimination were associated with elevated blood pressure for a sample of black Americans, while Landrine[18] found that racial discrimination was the best predictor of cigarette use among a sample of 300 black American adults. However, an inverse association between discrimination and health is not consistently found. For example, Poston[23] found no association between racial discrimination and elevated blood pressure among a small sample of 134 black Americans. Similarly, Murrell[24] found no significant association between perceived racial discrimination and very low birth weight among a sample of black American women. These differences in findings have obscured the role of racial discrimination in predicting poorer health outcomes for black Americans. As a result, the extent to which racial discrimination explains health disparities between black and white Americans is not clear. [23, 25, 18, 16] However, two studies have found that discrimination makes an incremental contribution above SES to account for racial disparities in health.[1, 33]

The empirical literature on the relationship between discrimination and health among black Americans, while growing, raises a number of important unanswered questions. For example, we need to develop measures that are both validated appropriately, and cover the full realm of racial discrimination. Moreover, our assessment of this relationship should account for the effects of neuroticism and social desirability, while also acknowledging the great variation among black Americans. Thus, it is the purpose of this paper to address these issues by conducting a systematic review of community studies that assess the relationship between perceived discrimination and physical health. Specifically, this paper will determine (1) the relative consensus of the association between racial discrimination and various physical health outcomes, with emphasis on black Americans, (2) the methodological quality of these studies in relation to sample characteristics and sample selection procedures, and (3) the strength and comprehensiveness of measuring racial discrimination as a concept among these studies, with special emphasis on identifying studies that use validated measures, and 4) studies that explored forms of interpersonal discrimination that are non-demonstrative and subtle.

Methodology

To identify relevant studies, we used the keyword 'prejudice' to search the MEDLINE database. In searching PSYCHINFO and SOCIOFILE for the same period, we used the keywords 'discrimination', 'race discrimination', 'ethnic discrimination', 'social discrimination', and 'racism'. Our search was limited to population-based studies, which empirically assessed the relationship between individual perceptions of racial discrimination and an indicator of health for samples that included black Americans. The search identified 24 studies. Our analysis assessed (1) whether there is consensus of racial discrimination and various physical health outcomes among those stud-

ies that included black Americans in the sample, (2) reviewed studies characteristics of the samples being used to draw these conclusions, and (3) how the concept of racial discrimination is being measured throughout all reviewed studies.

Results

Validation Studies. It is imperative to document validation procedures in the study design. These procedures may involve conducting analysis of validity and reliability (factor analysis, test-retest convergence/stability) to ensure that the scale, or measure is truly capturing the concept of perceived racial discrimination. Only eight studies validated the measure of racial discrimination.[1, 18, 19, 23, 24, 28, 31, 40] Of these studies, a measure of internal consistency was consistently reported, which yielded an average coefficient of .89 for all five studies. For example, Poston[23] examined the psychometric properties of the "Perceived Racism Scale (PRS)" by conducting tests of internal consistency and test-retest indicators of stability. These authors reported an internal consistency coefficient of .92, while reporting a test-retest coefficient of .75. Also, Landrine[18] reported an internal consistency coefficient of .95 for the "Schedule of Racist Events Scale (SRE)". Last, James[28] reported a coefficient of .90 for internal consistency, while Williams and colleagues[31] reported an internal consistency coefficient of .88 for the 9-item scale used to measure everyday racial discrimination.

Discrimination and Physical Health. Many studies used general self-report measures such as checklists of illnesses, bed days, and global ratings of health to assess the relationship between perceived racial discrimination and physical health. [1, 9, 15, 28, 29, 31, 33] Among the seven studies using self-reported health, four found that as racial discrimination increased, self-report of physical health worsened. [15, 28, 32, 33] The remaining three studies found positive relationships between discrimination and health but only for certain black American population subgroups, those that use various coping techniques or those that experience specific types of racial discrimination.[1, 9, 29, 33] For example, Williams and colleagues[1] found an association between a measure of everyday chronic discrimination, but not for a measure of acute experiences with racial discrimination. Also, Jackson[29] found a positive, significant association only among respondents who reported chronic experiences with racial discrimination, but did not find an association between experiences of racial discrimination during the month preceding the study and self-reported number of health problems.

Eleven studies assessed the relationship between racial discrimination and blood pressure.[9, 23, 25-28, 34, 35, 38-40] Six of these studies found a positive relationship between the perception of racial discrimination and elevated blood pressure.[23, 25-28, 40] Three studies found relationships that were mixed based on style of coping [9, 35] and social class[11]. Last, Poston[23] and Broman[39] did not find significant associations between perceived racial discrimination and elevated blood pressure for black Americans.

Perceived racial discrimination has also been studied in relation to other physical health behaviors and outcomes. Both Landrine[18] and Guthrie[19] found positive relationships between perceived racial discrimination and smoking behavior. Also, Yen[20, 30] found a positive association between racial discrimination and alcohol abuse. Collins[36] found a positive association between racial discrimination and life satisfaction, while Murrell[24] found no association between racial discrimination and very low birth weight among a sample of pregnant black American women. Rosenberg[41] and colleagues found associations between perceived racial discrimination and pre-term birth among black women with 12 or less years of education. Last, LaViest and colleagues[37] found that perceived racial discrimination had a negative effect on the survival of study participants during a specified follow-up time period.

The results of these studies must not be reported without some discussion of the study samples and methodologies employed. Of these studies, 52% used US cities as the primary sampling frame, with approximately half of these studies employing probability techniques to select respondents. Taken together, these studies produced a 77% response rate. In terms of the measuring perceived racial discrimination as a concept, approximately a third (33%) of all studies used a scale with a formal name, with the majority of these using the 18-item Schedule of Racist Events.[14] Hence, almost two-thirds of all studies used measures that had no formal name or designation. Also, none of these studies measured subtle racial discrimination when reporting results of the relationship between racial discrimination and physical health.

Implications for Future Research

As indicated by the number of studies published in this area since 1999, there has been a significant increase in attention being paid to assessing the relationship between discrimination and health. Despite the arduous task of measuring racial discrimination, the literature suggests that perceived racial discrimination has a negative effect on the physical health of black Americans. This synthesis also suggests that there are several key areas for subsequent improvement in assessing this relationship. Employing correct validation procedures, using replicable racial discrimination measures, and the acknowledgement of differential experiences with racial discrimination among black Americans all lend areas for further examination and improvement.

Initially, this review indicated that the concept of perceived racial discrimination was measured in a variety of ways. For example, only about a fourth of these studies attempted to validate the scale or set of questions that were used to draw these types of conclusions. Of those that incorporated validation procedures, the majority only reported a measure of internal consistency, which may be inappropriate for validating measures that seek to assess acute, perceived racial discrimination.[16, 19] Another issue in the measurement of racial discrimination is the degree to which the concept is

assessed. Few distinguish between chronic and acute perceived racial discrimination, while none of these studies attempted to measure the concept of subtle, non-aggressive racial discrimination. Indeed, this concept is certainly difficult to measure, but any truly comprehensive attempt to measure racial discrimination must include this aspect in the measurement process.

Various black American subgroups may also perceive racial discrimination differently. In essence, measures used in this type of research should aim to capture the broad variation in the black American population. As the black population is by no means homogenous, the experience of racial discrimination may be perceived differently by black American subgroups. Further, when gender or class-based discrimination is intertwined with racial discrimination, the unique contribution of race is even more difficult to identify. As a result, our measurement of racial discrimination should account for the many societal motivations that reflect subjugation, oppression, unfair treatment and discrimination.

In determining the causes for racial disparities in health for black Americans, our research should continue to focus on multifaceted theories. The effect of prolonged economic disadvantage must be incorporated in formulating our explanations. Moreover, the result of black Americans being highly concentrated in deprived residential areas should also be considered. In examining these theories, the ramifications of living in a racist society, which causes hazardous environmental conditions and ultimately unhealthy coping strategies, should guide our ongoing investigation. Hence, as we continue to conduct research aimed at eliminating racial health disparities, our research must develop methodologies that fully represent the concept and context of racial discrimination for all black Americans.

Preparation of this paper was supported by grants from the National Institute of Health (National Institute of General Medical Sciences 1 R25 GM58641-03), the Kellogg Foundation, the Rackham School of Graduate Studies, and the Center for Research on Ethnicity, Culture, and Health (CRECH) at The University of Michigan School of Public Health. We wish to thank Scott Wyatt and Car Nosel for assistance with the research and the preparation of the manuscript.

Studies Examining the Relationship of Racial Discrimination and Physical Health in Black American Populations

Authors	Study Setting and Design	Sample	Validated Discrimination Measure?	Physical Health Outcome	Findings
James SA et al. 1984	US City, Probability Sample	Black Male ages 17-60 N=112	No	Blood Pressure	Conditional[2]
Dressler W 1990	US City, Probability Sample	Black ages 25-55 N=186	No	Blood Pressure	Positive[1]
Krieger N 1990	US City, Probability Sample	Black (50%) White (50%) Female ages 20-80 N=101	No	Blood Pressure	Positive[1]
James K et al. 1994	Four large organizations, Convenience Sample	Latino (64%) Black (18%) Other (18%) N=89	Yes	Blood Pressure	Positive[1]
Jackson JS et al. 1996	National, Probability Sample	Blacks 62% F ages 18-101 N=2107	No	Self Report-Health Disability	Conditional[2]
Krieger & Sidney S 1996	3 US Cities, Convenience Sample	Black (50%) White (50%) 55% F ages 25-37 N=4086	No	Blood Pressure	Conditional[2]
Broman CL 1996	US City, Probability Sample	Black 67% F ages ≥ 18 N=797	No	Blood Pressure	No Association[3]
Murrell NL 1996	National, Convenience Sample	Black Female ages ≥ 18 N=126	Yes	Low Birthweight	No Association[3]
Williams DR et al. 1997	US City, Probability Sample	Black (50%) White (48%) Asian (2%) ages ≥ 18 N=1139	Yes	Self Report-Bed Days	Conditional[2]

[1] "Positive" is defined as more perceived racial discrimination is associated with higher levels of illness.
[2] "Conditional" is defined as positive association but only under some conditions.
[3] "No Association" is defined as discrimination unrelated to health status.

Studies Examining the Relationship of Racial Discrimination and Physical Health in Black American Populations, continued

Authors	Study Setting and Design	Sample	Validated Discrimination Measure?	Physical Health Outcome	Findings
Williams & Chung A-M 1997	National, Probability Sample	Black 62% F ages 18-101 N=2107	Yes	Self Report-Health Problems	Conditional[2]
Yen IH et al. 1999	US City, Convenience Sample	Black (57%) Asian (16%) Latino (12%) White (14%) ages 25-55 N=839	No	Alcohol Consumption	Positive[1]
Ren XS et al. 1999	National, Probability Sample	Black (9%) White (91%) ages ≥ 18 N=1659	No	Self Report-Health Status	Positive[1]
Yen IH et al. 1999	US City, Convenience Sample	Black (25%) Asian (25%) Latino (25%) White (25%) ages 25-55 N=836	No	Alcohol Consumption	Positive[1]
Williams et al. 1999	US City, Probability Sample	Black (50%) White (48%) Asian (2%) ages ≥ 18 N=1139	Yes	Self Report-Health Status	Positive[1]
Landrine H & Klonoff EA 2000	US City, Convenience Sample	Black 54% F ages 15-70 N=153	Yes	Cigarette Smoking	Positive[1]
Stancil TR et al. 2000	US City, Convenience Sample	Black Female ages 18-35 N=94	No	Blood Pressure	Positive[1]
Schulz A et al. 2000	US City, Probability Sample	Black (80%) White (20%) Female ages ≥ 18 N=1352	No	Self Report-Health Status	Positive[1]

[1] "Positive" is defined as more perceived racial discrimination is associated with higher levels of illness.
[2] "Conditional" is defined as positive association but only under some conditions.
[3] "No Association" is defined as discrimination unrelated to health status.

Studies Examining the Relationship of Racial Discrimination and Physical Health in Black American Populations, continued

Authors	Study Setting and Design	Sample	Validated Discrimination Measure?	Physical Health Outcome	Findings
Collins JW et al. 2000	US City, Convenience Sample	Female Black ages 18-35 N=85	No	Infant Birth Weight	Positive[1]
LaViest TA et al. 2001	National, Probability Sample	Black F 62% ages 18-101 N=2107	No	Mortality	Conditional[2]
Guthrie BJ et al. 2001	National, Convenience Sample	Black Female ages 11-19 N=105	Yes	Cigarette Smoking	Positive[1]
Poston WSC et al. 2001	US City, Convenience Sample	Black (63%) African (47%) F 78% avg. age=44 N=185	Yes	Blood Pressure	No Association[3]
Guyll M et al. 2001	US City, Convenience Sample	Black (29%) White (71%) Female ages 42-52 N=363	No	Blood Pressure	Positive[1]
Troxel WM et al. 2002	US City, Convenience Sample	Black (33%) White (67%) Female ages 42-52 N=334	No	Subclinical Cartoid Disease Risk	No Association[3]
Rosenberg L et al. 2002	National, Convenience Sample	Black Female ages 21-69 N=4966	No	Preterm Birth	Conditional[2]

[1] "Positive" is defined as more perceived racial discrimination is associated with higher levels of illness.
[2] "Conditional" is defined as positive association but only under some conditions.
[3] "No Association" is defined as discrimination unrelated to health status.

References

1. Williams, D.R., Yu Yan, Jackson, J.S., Anderson, N.B. (1997). "Racial differences in physical and mental health." *Journal of Health Psychology.* **2**: 335-351.

2. Lillie-Blanton, M., Parsons, P.E., Gayle, H., Dievler, A. (1996). "Racial differences in health: Not just black and white, but shades of gray." *Annual Review of Public Health.* **17**: 411-448.

3. Williams, D.R., Lavizzo-Mourey R., Warren, R.C. (1994). "The concept of race and health status in America." *Public Health Reports.* **109**: 26-41.

4. 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.

5. Massey, D.S., Denton, N.A. (1993). "American apartheid: Segregation and the making of the underclass." Cambridge, MA: Harvard University Press.

6. Lott, B., Maluso, D. (1995). "The social psychology of interpersonal discrimination." New York: Guilford Press.

7. Feagin, J.R. (1991). "The continuing significance of race: Antiblack discrimination in public places." *American Sociological Review.* **56**: 101-116.

8. Nazroo, J.Y. (1998). "Genetic, cultural or socioeconomic vulnerability? Expanding ethnic inequalities in health." *Sociological Health and Illness.* **20**: 714-734.

9. Krieger N. (1990). "Racial and gender discrimination: Risk factors for high blood pressure?" *Social Science and Medicine.* **30**: 1273-1281.

10. Parker, H., Botha, J.L., Haslam, C. (1994). "'Racism' as a variable in health research – Can it be measured?" J*ournal of Epidemiology and Community Health.* **48**(522).

11. Krieger N. (1999). "Embodying inequality: A review of concepts, measures, and methods for studying health consequences of discrimination." *International Journal of Health Services.* **29**: 295-352.

12. Franklin, A.J. (1999). "Invisibility syndrome and racial identity development in psychotherapy and counseling African-American men." *The Counseling Psychologist* **27**: 761-793.

13. Jones, J.M. (1997). "Prejudice and racism." New York: McGraw-Hill.

14. 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*. **26**: 165-180.

15. Schulz, A., Israel, B., Williams, D.R., Parker, E., Becker, A., James S. (2000). Social inequalities, stressors and self-reported health status among African American and white women in the Detroit Metropolitan Area." *Social Science & Medicine.* **51**: 1639-1653.

16. Williams, D.R., Neighbors, H.W., Jackson, J.S. (in press). "Racial/Ethnic discrimination and health: Findings from community studies." *American Journal of Public Health.*

17. Gee, G. (2002). "A multilevel analysis of the relationship between institutional and individual racial discrimination and health status." *American Journal of Public Health.* **92**(4): 615-623.

18. Landrine, H., Klonoff, E.A. (2000). "Racial discrimination and cigarette smoking among blacks: Findings from two studies." *Ethnicity and Disease.* **10**: 195-202.

19. Guthrie B.J., Young, A.M., Williams, D.R., Boyd, C.J., Kintner, E.K. (2001). "African American girls' smoking habits and day-to-day experiences with racial discrimination." *Nursing Research.* **51**: 1-7.

20. Yen, I.H., Ragland, D.R., Greiner, B.A., Fisher, J.M. (1999). "Racial discrimination and alcohol-related behavior in urban transit operators: Findings from the San Francisco Muni Health and Safety Study." *Public Health Reports*. **114**: 448-458.

21. Avison, W.R., Gotlib, I.H. (1994). "Introduction and overview, in stress and mental health." New York: Plentum Press.

22. Neighbors, H.W., Williams, D.R. (2001). "Racism and the mental health of African Americans: The role of self and system blame." *Ethnicity and Disease*. **6**: 167-175.

23. Poston, W.S.C., Pavlik, V.N., Hyman, D.J., et al. (2001). "Genetic bottlenecks, perceived racism, and hypertension risk among African Americans and first-generation African immigrants." *Journal of Human Hypertension.* **15**: 341-351.

24. Murrell, N.L. (1996). "Stress, self-esteem, and racism: Relationships with low birth weight and preterm delivery in African American women." *Journal of National Black Nurses' Association.* **8:** 45-53.

25. Dressler, W.W. (1990). "Lifestyle, stress, and blood pressure in a Southern black community." *Psychosomatic Medicine.* **52**: 182-198.

26. Troxel, W.M., Matthews, K.A., Bromberger, J.T., Sutton-Tyrrell, K. (in press). "Chronic stress burden, discrimination, and subclinical cardiovascular disease in African American and Caucasian women." *Hypertension.*

27. Guyll, M., Matthews, K.A., Bromberger, J.T. (2001). "Discrimination and unfair treatment: Relationship to cardiovascular reactivity among African American and European American women." *Health Psychology.* **20**: 315-325.

28. James, K., Lovato, C., Khoo, G. (1994). "Social identity correlates of minority workers' health." *Academy of Management Journal.* **37**: 383-396.

29. 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.

30. Yen, I.H., Ragland, D.R., Greiner, B.A., Fisher, J.M. (1999). "Workplace discrimination and alcohol consumption: Findings from the San Francisco Muni Health and Safety Study." *Ethnicity and Disease.* **9**: 70-80.

31. Williams, D.R., Spencer, M., Jackson, J.S. (1999). "Race, stress, and physical health: The role of group identity." In: Contrada, R.J., Ashmore, R.D., eds. Self, Social Identity and Physical Health: Interdisciplinary Explorations. New York: Oxford University Press.

32. Williams, D.R. (1999). "Race, SES, and health: The added effects of racism and discrimination." *Annals of the New York Academy of Sciences.* 896: 173-188.

33. Ren, X.S., Amick, B., Williams, D.R. (1999). "Racial/ethnic disparities in health: The interplay between discrimination and socioeconomic status." *Ethnicity and Disease.* **9**: 151-165.

34. Stancil, T.R., Hertz-Picciotto, I., Schramm, M., Watt-Morse, M. (2000). "Stress and pregnancy among African-American women." *Pediatric and Perinatal Epidemiology.* **14**: 127-135.

35. 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.

36. Collins, J.W. Jr., David, R.J., Symons, R., Handler, A., Wall, S.N., Dwer, L. (2000).

"Low income African American mothers' perception of exposure to racial discrimination and infant birth weight." *Epidemiology*. **11**: 337-339.

37. LaVeist, T.A., Sellers, R., Neighbors, H.W. (2001). "Perceived racism and self and system blame attribution: Consequences for longevity." *Ethnicity and Disease.* **11**: 711-721.

38. James, S.A., LaCroix, A.Z., Kleinbaum, D.G., Strogatz, D.S. (1984). "John Henryism and blood pressure differences among black men. II. The role of occupational stressors." *Journal of Behavioral Medicine.* **7**: 259-275.

39. Broman, C.L. (1996). "The health consequences of racial discrimination: A study of African Americans." *Ethnicity and Disease*. **6**(1,2): 148-153.

40. Williams, D.R., Chung, A-M. (1997). "Racism and health." In: Gibson, R., Jackson, J.S., Health in Black America. Thousand Oaks, CA: Sage Publications.

41. Rosenberg, L., Palmer, J.R., Wise, L.A., Horton, N.J., Corwin, M.J. (2002). "Perceptions of racial discrimination and the risk of preterm birth." *Epidemiology.* **13**: 646-652.

42. Edelman, M.W. (1992). "The measure of success: A letter to my children and yours."(p. 23). Boston: Beacon Press.