The Relation between Perceived Unfair Treatment and Blood Pressure in a Racially/Ethnically Diverse Sample of Women

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Elevated blood pressure is an important public health problem in midlife women, especially among minority groups. Few studies have examined the impact of perceived unfair treatment due to different factors such as racism, sexism, or ageism on blood pressure. By use of a racially/ethnically diverse community sample of nearly 3,300 midlife women enrolled in the longitudinal, multisite Study of Women’s Health across the Nation between 1995 and 1997, this study examined whether perceived unfair treatment varied by race/ethnicity and whether it was associated with blood pressure levels. Overall, unfair treatment was reported by 65% of African-American women, 60% of Chinese women, 36% of Japanese women, 47% of White women, and 27% of Hispanic women. Although racial/ethnic differences in blood pressure were evident, high levels of perceived unfair treatment were not a correlate of elevated blood pressure.

blood pressure; continental population groups; ethnic groups; prejudice

Abbreviation: SWAN, Study of Women’s Health across the Nation.

Hypertension is one of the most common chronic illnesses in the United States, and it is a major risk factor for cardiovascular disease and coronary heart disease. African Americans are disproportionately affected by hypertension when compared with Whites (1). In addition, several studies report a higher prevalence of excess weight, diabetes, and untreated hypertension in Mexican-American women than in White women (2–6). Among Asian Americans, increased rates of hypertension among Filipinos have been reported (7). The higher rates of hypertension among African-American, Hispanic, and some Asian women when compared with White women are of particular importance during midlife, a developmental period when women in general experience weight gain, which is related to an increased risk for high blood pressure. A key question is why some racial/ethnic minority women are at increased risk for hypertension.

A common, theoretically based hypothesis is that the stress of discrimination may place racial/ethnic minority groups at risk for hypertension. As noted by Clark et al. (8), African Americans are disproportionately exposed to environmental factors that may be sources of chronic and acute stress. The basis of these stressors is frequently perceived as involving racism. In their biopsychosocial model, Clark et al. posit that, if exposure to racism is perceived as stressful, it may have negative “biopsychosocial sequelae” that might account for disparities in health outcomes between racial/ethnic minority women and White women.

Several studies have examined the relation between perceived racism and/or discrimination and hypertension or
blood pressure in African Americans. However, findings are mixed. Several studies found no effects of perceived discrimination on blood pressure (9–11), while two studies showed an inverse relation between perceived discrimination and blood pressure among certain groups of participants; that is, reports of no exposure to discrimination were associated with higher blood pressure (12, 13). Three studies indicated a positive association between perceived discrimination and blood pressure in at least one subgroup of participants characterized by gender and social class (11, 12, 14).

To our knowledge, few studies have examined the association of perceived unfair treatment due to different factors such as racism, sexism, or ageism and blood pressure. Furthermore, it has been assumed that racial/ethnic minorities most frequently experience racism as the basis for perceived unfair treatment, as opposed to other causes. This may not be the case, or there may be other reasons for perceived unfair treatment that are also stressful and may be linked to risk for hypertension. In the present study, we examine whether perceived unfair treatment varies by race/ethnicity in a community sample of midlife women and whether it is associated cross-sectionally with blood pressure in African-American, Hispanic, White, Japanese, and Chinese women.

MATERIALS AND METHODS

The Study of Women’s Health across the Nation (SWAN) is a longitudinal, multisite, multiethnic, community-based study of over 3,300 women as they approach and experience menopause. This observational study recruited community samples of Chinese, Japanese, African-American, Hispanic, and White women of diverse socioeconomic status at seven sites. The major goal of SWAN is to increase our understanding of the menopausal transition by prospectively evaluating ovarian function, psychosocial factors, cardiovascular risk factors, bone density, and metabolism.

Participants

Eligibility criteria for SWAN included being aged 42–52 years, having an intact uterus, having had at least one menstrual period in the previous 3 months, having had no use of reproductive hormones in the previous 3 months, and self-identifying with one of the site’s designated race/ethnic minority groups. Institutional review board approval was obtained at each SWAN site, and each study participant provided written informed consent. Comprehensive assessments were completed at baseline and at annual follow-up visits. This report uses data from the baseline evaluation (n = 3,300) and one of the first three annual assessments of SWAN. The design of the study has been described previously (15). A screening interview was conducted between November 1995 and October 1997 to evaluate eligibility for entry into the cohort study and to collect health, reproductive, demographic, and lifestyle data. The women were randomly selected at seven sites across the United States from a variety of lists including a large managed care plan, community census, utility households, registered voters, random digit dialing, or by “snowballing.” The latter consisted of asking women who had completed the screening interview to provide the names of five women who were age eligible and who lived in the target area; it was used in Newark, New Jersey, because of the difficulty in obtaining the requisite number of participants through random digit dialing. Each site recruited approximately 450 participants: White women and women of one predetermined minority group (African Americans in Pittsburgh, Pennsylvania; Boston, Massachusetts; Detroit, Michigan; and Chicago, Illinois; Japanese in Los Angeles, California; Chinese in the San Francisco Bay region, California; and Hispanics in Newark, New Jersey). Overall, approximately 50 percent of those eligible entered the cohort study. During 1996–1997, each of seven sites enrolled at least 450 women into the longitudinal study.

Measures

Demographics. At baseline, participants self-reported age, race/ethnicity, education, income, employment, and marital status. Financial hardship was assessed with a single question asking participants whether they had difficulty paying for basics such as food, medical care, and heating. Respondents indicated whether it was very hard, somewhat hard, or not very hard at all.

Physical measures. Anthropometric measurements included height, weight, and waist and hip circumferences. Body mass index was calculated by dividing weight in kilograms by height in meters squared (kg/m²). Three consecutive blood pressure measurements were obtained by a trained technician with a random-zero sphygmomanometer and were standardized for cuff size, position, and rest period. The first measurement was excluded, and the latter two blood pressure readings were averaged for each participant for use in the analysis. To ensure quality technician performance and compliance with a standard protocol, all SWAN interviewers were certified before collecting physical measures on participants.

Health-related information. At baseline, participants provided information concerning medical history, current medical conditions, and use of medications for hypertension. History of hypertension was defined as present if they had ever been told by a health professional that they had hypertension. Family history of hypertension was ascertained in an interview conducted at the second annual assessment. Physical activity was assessed using an adaptation of the 1982 Baercke questionnaire, an instrument that has been used widely in the epidemiologic literature and has documented reliability and validity. This instrument assesses several domains of physical functioning, including sports, exercise, household and care-giving physical activity, and active living, for example, walking to work or errands. For this analysis, a total score was used.

Perceived unfair treatment. Perceived unfair treatment was assessed with 10 items from the Everyday Discrimination Scale (16). Respondents indicated on a four-point Likert scale (i.e., often, sometimes, rarely, never) how often they experienced 10 different instances of perceived unfair treatment ranging from threats and obscenities to lack of courtesy by a clerk. If one or more items were endorsed as occurring “often” or “sometimes,” respondents were asked to indicate what they thought was the main reason for the perceived
unfair treatment that they experienced. Respondents could select one of the following choices: race, ethnicity, gender, age, income level, language, physical appearance, sexual orientation, other. As recommended by Williams et al. (16), those who reported that any type of perceived unfair treatment occurred at least sometimes or often were considered high in perceived unfair treatment, whereas others were considered low. A total score was also calculated by summing the 10 items. The latter score was used in analyses that correlated unfair treatment with blood pressure.

Statistical analyses

The distributions of continuous variables were checked prior to the analysis. Physical activity and unfair treatment score were not normally distributed, and no suitable transformations were found to improve the distributions. Therefore, nonparametric methods were used for the analyses that involved these two variables. Between-groups comparisons were carried out by analysis of covariance or the Kruskal-Wallis test for continuous variables and by Pearson’s \( \chi^2 \) tests for categorical variables. Covariates were adjusted in analyses of covariance and Spearman’s partial correlations. Covariates included age, body mass index, blood pressure medication use, education, and family history of hypertension. The analyses were conducted using Statistical Analysis System, version 8.02, software (SAS Institute, Inc., Cary, North Carolina). A significance level of 0.05 was used for all of the comparisons.

RESULTS

Sample characteristics

Table 1 presents participants’ characteristics by racial/ethnic group. On average, women were about 46 years of age. There were significant differences in measured blood pressure, body mass index, total physical activity, self-report of health professional-diagnosed hypertension, hypertension medication use, family history of hypertension, education, marital status, and family income across racial/ethnic groups (\( p < 0.001 \)). Generally, African-American participants had the highest body mass index and self-reported rates of health professional-diagnosed hypertension, while Chinese and Japanese participants had the lowest. Hispanic participants had the lowest socioeconomic position as indicated by education, family income, and difficulty paying for basics. White women and Japanese women reported similarly high levels of physical activity and had greater proportions with more than a high school education.

Racial/ethnic differences in perceived unfair treatment

The groups differed significantly in reported perceived unfair treatment (\( p < 0.001 \)). More than half of African-American and Chinese participants experienced high perceived unfair treatment (65 percent and 60 percent, respectively), while only 36 percent of Japanese and 27 percent of Hispanic participants reported such experiences (figure 1). Among non-White participants, the most commonly reported reason for perceived unfair treatment was race and ethnicity (African Americans, 59 percent; Chinese, 37 percent; Hispanics, 44 percent; and Japanese, 32 percent) (figure 2). White participants most frequently attributed perceived unfair treatment to gender (23 percent). The frequencies reported in figures 1 and 2 are unadjusted.

Perceived unfair treatment and blood pressure

Both systolic and diastolic blood pressures varied among the race/ethnic groups (\( p < 0.001 \)), with higher levels in the
African-American and Hispanic participants (table 1). As shown in table 2, there was a significant negative correlation of low magnitude between systolic blood pressure and total perceived unfair treatment score in the full sample when adjusted for the following covariates: age, body mass index, blood pressure medication use, education, and family history of hypertension. There was also a significant negative correlation of low magnitude between diastolic blood pressure and total perceived unfair treatment score in the full sample with covariate adjustment.

There was no significant correlation between perceived unfair treatment and systolic blood pressure among the subset of participants who were not taking blood pressure medication. However, there was a significant negative correlation of low magnitude between diastolic blood pressure and total perceived unfair treatment among participants who were not taking blood pressure medication (table 2). In addition, the perceived reason for unfair treatment (e.g., race/ethnicity) was not significantly associated with systolic blood pressure or diastolic blood pressure in the full sample or within each racial/ethnic group separately (data not shown).

DISCUSSION

Using a large racially/ethnically diverse community sample of middle-aged women, we examined the association between perceived unfair treatment and blood pressure levels. Our findings indicate that perceived unfair treatment is
common among midlife women and that it differs by race/ethnicity. In our sample, at least one of five women reported experiencing unfair treatment because of race/ethnicity or gender. Racial/ethnic differences were evident in not only the number of women who reported such experiences but also their attribution for unfair treatment. Although racial/ethnic minority women most frequently attributed perceived unfair treatment to race/ethnicity, White women most frequently attributed perceived unfair treatment to gender. African-American women had the highest proportion of women reporting experiences of unfair treatment, followed by Asian-American women and White women. Hispanic women reported experiencing unfair treatment the least. Our findings partially support those of earlier population-based studies that have found that African Americans and other racial/ethnic minorities report higher levels of perceived discrimination than do Whites (17–19). However, our findings for Hispanic women are not consistent with this. Our sample of Latino women immigrated from countries where gender discrimination is common and, in general, widely accepted. These women also had very low socioeconomic status, but it is possible that they live in largely Hispanic communities and therefore don’t experience the same level of racial discrimination as they might if they lived in more integrated communities. In addition, they might not be sensitized to discrimination that may have occurred.

Significant racial/ethnic differences in blood pressures were evident, overall, but our findings indicate that high levels of perceived unfair treatment were not a correlate of blood pressure, even among women who reported the highest levels of perceived unfair treatment (i.e., African-American and Chinese women). This is consistent with earlier reports that found no main effects of perceived discrimination on blood pressure (9–11), and our findings extend them to a large racially/ethnically diverse sample who report different types of perceived unfair treatment.

There are a number of limitations in the present study that should be considered. First, our analyses were based on cross-sectional data. Second, we classified participants as hypertensive if they reported taking a hypertensive medication. This classification is potentially biased, because participants would be erroneously classified as nonhypertensive and they would be included in the subsample analyses of those without known hypertension. Third, we did not examine predispositions such as “John Henryism” (i.e., a strong tendency to confront adversity with determined effort) (20), which might differentially be associated with increased hypertension in African Americans or other minority women exposed to unfair treatment. In addition, race consciousness might be an important variable to consider in examining perceived unfair treatment in racial/ethnic minority women. For example, high race consciousness might mitigate the impact of perceived discrimination (21). Finally, although our study benefited from a large diverse sample of women, concerns about respondent burden limited our ability to obtain a more in-depth evaluation of perceived unfair treatment. Therefore, we were unable to examine perceived unfair treatment across multiple domains (e.g., work, social, public) as in the measure developed by McNeilly et al. (22) or to evaluate the impact of cumulative as well as recent exposure to perceived unfair treatment on blood pressure.

In summary, we found that, although perceived unfair treatment was common among a diverse sample of midlife women, we did not find a positive relation between elevated blood pressure and perceived unfair treatment. However, the conclusion that there is no significant relation between perceived unfair treatment and blood pressure is made cautiously because of limitations in our measurement of unfair treatment. Future research is needed to determine whether the relation between blood pressure and perceived unfair treatment is moderated by dispositional factors or contextual factors (e.g., acculturation, socioeconomic status, coping strategies used) and which, if any, of these factors put women of diverse ethnicities at greater risk for poorer cardiovascular health.

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