Published in final edited form as:
Cultur Divers Ethnic Minor Psychol. 2008 July ; 14(3): 173–182. doi:10.1037/1099-9809.14.3.173.

Race and Gender Matter: A Multidimensional Approach to Conceptualizing and Measuring Stress in African American Women

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Abstract

Based on prior research and theory, the authors constructed a multidimensional model of stress in African American women comprised of race-related, gender-related, and generic stress. Exposure to and appraisal of these three types of stress were combined into a higher-order global stress factor. Using structural equation modeling, the fit of this stress factor and its ability to predict distress symptoms were examined in 189 socioeconomically diverse African American women aged 21 to 78. Results support the multidimensional conceptualization and operationalization of stress. Race-related, gender-related, and generic stress contributed equally to the global stress factor, and global stress predicted a significant amount of variance in distress symptoms and intensity. This model exhibited better fit than a model without a global stress factor, in which each stress component predicted distress directly. Furthermore, race-related, gender-related, and generic stress did not contribute to distress beyond their representation in the global stress factor. These findings illustrate that stress related to central elements of identity, namely race and gender, cohere with generic stress to define the stress experience of African American women.

Keywords

stress; women; African American; gender; racism

African American women experience a disproportionately high rate of stress-related health problems, including cardiovascular disease, cerebrovascular disease, and adverse birth outcomes (Office on Women's Health, 2006). Despite evidence establishing a relationship between stress and health in other populations (e.g., Cohen, Tyrrell, & Smith, 1991; Kiecolt-Glaser, Glaser, Gravenstein, Malarkey, & Sheridan, 1996), effects of stress on health in African American women remain inadequately examined. One likely reason is the challenge of defining stress in African American women.

Stress has been defined as a stimulus, a response, and as an interaction between stimuli and responses (Lobel & Dunkel-Schetter, 1990). According to the widely accepted transactional model, stress is a subjectively perceived discrepancy between environmental demands and biological, psychological, or social resources (Lazarus & Folkman, 1984). An important element of this definition is the perception of environmental demands or threats and perceived

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ability to meet these demands, labeled *stress appraisal* (Lazarus & Folkman, 1984). "Stressors" are environmental demands, events, threats, or stimuli to which an individual is exposed. "Distress" is an aversive state evidenced by physical or psychological symptoms such as worry, tension, headaches, or weakness. Distress is an outcome of stress, resulting from exposure to stressors in the context of intrapersonal, interpersonal, or tangible resources appraised as inadequate to manage the stressors (Dohrenwend & Dohrenwend, 1974).

The stressors to which African American women are exposed and their appraisals of stressors reflect this population's distinct history, sociocultural experiences, and position in society (Brown, Parker-Dominguez, & Sorey, 2000; Jackson, Phillips, Hogue, & Curry-Owens, 2001; Jackson, Hogue, Phillips, 2005). The stress experiences of African Americans and European Americans differ both in magnitude and content (Jackson, 2002). Racism is a specific type of stress that distinctively affects the well-being of African Americans (Clark, Anderson, Clark, & Williams, 1999; Williams, Neighbors, & Jackson, 2003). Stress experiences also differ for men and women (Wethington, McLeod, & Kessler, 1987).

Conceptualization and operationalization of stress in African American women must be as comprehensive as possible to ensure that findings are valid and complete (Brown et al., 2000). With few exceptions (King, 2003; Moradi & Subich, 2003), prior studies of stress in African American women have focused either upon raceor gender-specific experiences (Jackson et al., 2001, 2005; Klonoff, Landrine, & Ullman, 1999; Kwate, Valdimarsdottir, Guevarra, & Bovbjerg, 2003). We propose that the definition of stress in African American women includes both of these components, with the addition of generic stress, that is not a direct result of race or gender. To our knowledge, no prior study has included these three elements in a multidimensional conceptualization of stress in African American women.

Race-Related Stress

Racism is a stressor that affects the psychological and physical health of African Americans (Harrell, 2000; Williams, Neighbors, & Jackson, 2003). Racism is situated in the roles and experiences of African American women (Jackson et al., 2001). African American women report that racism is a potent stressor, particularly in the workplace, and that they feel especially obligated to deal with racism directed at children (Jackson et al., 2001). Evidence from multiple disciplines documents that racism is associated with indicators of poorer health in African American women including general psychological distress (Kwate et al., 2003), depression (Schulz, Gravlee, Williams, Israel, Mentz, & Rowe, 1996), cigarette and alcohol consumption (Guthrie et al., 2002; Kwate et al., 2003), poorer perceived health status (Kwate et al., 2003; Schulz et al., 2006), lifetime history of physical disease and frequency of the common cold (Kwate et al., 2003), and adverse cardiovascular (Clark, 2006; Krieger, 1990) and reproductive health outcomes (Giscombé & Lobel, 2005).

Research that addresses the impact of racism on health in African American women has primarily investigated individual racism or direct experiences with unfair or biased treatment. A recent study of African American women found that 93% had experienced racism or discrimination directly (Vines et al., 2006). There is wide agreement that racism also involves institutional and cultural discrimination (Utsey, 1999) and must be measured multidimensionally to fully understand its influence on health (Utsey & Ponterotto, 1996).

Gender-Related Stress

With rare exception, research on gender-related stress in African American women has focused on sexism or gender discrimination (Moradi & Subich, 2003; Krieger, 1990). These studies consistently demonstrate that sexism is correlated with racism and with psychological distress for African American women (Moradi & Subich, 2003; King, 2003). In one study, lifetime

sexist events accounted for more variance in psychological symptoms for women of color compared to European American women (Landrine, Klonoff, Gibbs, Manning, & Lund, 1995). A recent investigation found that ethgendered prejudice (prejudiced attributions to a person's race *and* gender) and perceived racism, but not perceived sexism, were associated with psychological stress and social self-esteem in African American women (King, 2003). However, our knowledge about gender-related stress in African American women is limited, because it is uncommon for investigations to go beyond sexism to include a wider range of gender-related stressors that affect the lives of African American women (Jackson et al., 2005)

Generic Stress in the Context of Race-and Gender-Related Stress

Generic stressors include events or conditions such as accidents, persistent financial strain, and interpersonal conflict that are not a direct result of one's race or gender. However, some generic stressors are difficult to differentiate from those that are race-or gender-related. For instance, low salaries, which contribute to generic stress, likely reflect race-and gender-related discrimination and lack of opportunity. African American women may also be especially susceptible to distress from generic life events because of insufficient tangible resources needed to recuperate. A majority of African Americans lack the generationally inherited wealth of European Americans (University of Michigan, 2000). In addition, women's socialization as nurturers who provide emotional and instrumental care to others makes them especially vulnerable to "network stress" that affects family members and friends (Kessler & McLeod, 1984; Thoits, 1991).

Finally, the double jeopardy of racism and gender-related stress may create a uniquely high level of vulnerability to generic stressors (Beal, 1970). The allostatic view of stress (McEwen, 1998) suggests that individual stressors are likely to have greater negative impact in the context of multiple sources of stress. Thus, because African American women are exposed to stressors from various sources over time, they may be susceptible to its psychological and physical consequences. However, there is insufficient data about normative levels of distress in African American women, because they are often included in research where their results are not examined separately from those of African American men and European American women (Neal-Barnett & Crowther, 2000). The exception involves clinical populations, where African American women diagnosed with depression report higher levels of distress than their European American counterparts (Myers et al., 2002).

Previous research has demonstrated the importance of conceptualizing stress multidimensionally in African American women. A model containing racist and sexist events accounted for 14% of distress variance in a group of African American women (Moradi & Subich, 2003). In a study of African American men and women, a model containing racist events and generic stressors, in addition to demographic variables such as gender, age, income, and education, accounted for 28% of the variance in distress symptoms (Klonoff et al., 1999). Neither study examined race-related stress, gender-related stress, and generic stress simultaneously, nor did they uniformly measure both exposure to and appraisal of stressors.

Study Aims

The primary aim was to represent the conceptual and empirical association of race-related stress, gender-related stress, and generic stress through a single, multidimensional stress construct. This conceptualization of stress recognizes *exposure* to stressful events in addition to *appraisal or perception* of those events (Lazarus & Folkman, 1984). Previous research has demonstrated the theoretical significance and operational utility of this approach in African American women (Kwate et al., 2003; Landrine & Klonoff, 1996).

We used structural equation modeling (SEM) to test the adequacy of a higher-order latent stress factor ("global stress") comprised of three latent subfactors: race-related stress, gender-related stress, and generic stress. This approach is preferable to other methods such as using a weighted sum-score or linear composite of different types of stress for two reasons. First, measurement error is a particular problem for indices of stress (Thoits, 1983) and sum-score approaches assume high measurement accuracy (Bollen, 2002; Bollen & Lennox, 1991). By comparison, latent variable models separate error from construct measurement (Bollen, 2002; Byrne, 2001). Using a latent factor to represent stress therefore enables more reliable definition of stress and more powerful prediction of stress outcomes. Second, the approach used here is driven by an a priori, theoretically founded definition of stress that views race-related, gender-related, and generic stress exposure and appraisal as observable manifestations of a common, underlying construct, namely stress in African American women. This conceptualization emphasizes the inextricability of race-related, gender-related, and generic stressors in the lives of African American women.

As recommended (e.g., Utsey & Ponterotto, 1996), we used a measure of race-related stress that includes individual, institutional, and cultural racism. We operationalize gender-related stress by assessing sexual discrimination and harassment in addition to stressors related to expectations to be "strong" for their families and communities, serve as caregivers to others and as active participants in community organizations, and obtain resources and services for their families. The operationalization of gender-related stress also includes physical or sexual assault, stressors related to family planning and reproductive health, alimony and child support, and raising children.

We hypothesized that race-related stress and gender-related stress would have equal or higher loadings on the latent global stress factor compared to generic stress. We also hypothesized that the model of a multidimensional latent global stress construct would be a better fit to the data than an alternative model in which race-related, gender-related, and generic stress were treated as independent predictors of distress. We also explored whether any of the three contributors to global stress (race-related stress, gender-related stress, and generic stress) separately predicted distress beyond their representation in this global factor. There is some reason to expect unique associations of race-related and gender-related stress with distress because of prior evidence that these types of stress account for more variance in distress symptoms than generic stressors (Klonoff et al., 1999; Landrine et al., 1995).

Method

Participants

Participants were recruited from multiple sites in a large Northeastern city and a less populous Southeastern city: churches, civic organizations, a school parent/teacher association, and hair salons patronized primarily by African American women. English-speaking women at least 21-years-old who identified themselves as African American were eligible. Those who met eligibility criteria were invited by a female African American research assistant to complete a 30-min questionnaire for a study on "the health and well-being of African American women." The participation rate was 94%; three participants were later found to be ineligible because of age, and two were excluded because more than 10% of their questionnaire items were incomplete. Thus, analyses were performed on 189 participants.

Sample Description

Participants ranged in age from 21 to 78 years (M = 41.5, SD = 14.3). The majority were residents of the Southeastern United States (79.9%); 19% lived in the Northeast. The sample was diverse in religious identification, including Catholic, Muslim, Jewish, Rastafarian,

Jehovah's Witness, Quaker, and none. A majority (70%) identified themselves as Protestant. Thirty-seven percent were married, 23.8% were single, 21.7% were in a committed relationship, 11.6% were divorced, and 5.3% were widowed. Most (63.5%) were employed full time. Almost a third (31.2%) reported a bachelor's degree as their highest educational credential. An additional 23.3% had obtained a Master's degree or the highest degree in their academic field (JD, MD, or PhD). Approximately 9% were full-time students; 7.9% were part-time students. Median household income was between $26,000 and $50,000 with 37.6% earning more than $50,000 per year and 25.4% of households earning less than $26,000. Sixty-five percent of participants were mothers.

Measures

Race-related stress—The Index of Race-Related Stress-B (IRRS-B; Utsey, 1999) contains 22 items assessing cultural, institutional, and individual racism. Respondents indicate the race-related events that they or someone close to them has experienced. With permission from its primary author, we modified the measure to have participants report events that happened in the *past year*; in its original format, the IRRS-B does not specify a timeframe (S. O. Utsey, personal communication). Sample items include "You were treated with less respect and courtesy than Whites and other non-Blacks whereas in a store, restaurant, or other business establishment;" "You seldom hear or read anything positive about Black people on radio, TV, newspapers or in history books;" and "You were refused an apartment or other housing; you suspect it was because you are Black." Reactions to each event are rated on a 5-point Likert scale: 0 (has never happened to me or someone very close to me; 1 (happened, but did not bother me); 2 (happened, and I was slightly upset); 3 (happened, and I was upset); and 4 (happened and I was extremely upset). The IRRS-B exhibited convergent and criterion validity in a sample comprised mostly of African American women (Utsey, 1999). The internal consistency of race-related events (Cronbach's alpha = .95) indicates that these events co-occurred. Two indices were created: race-related stress exposure (total number of events endorsed) and race-related stress appraisal (average reaction to events using the Likert scale described above).

Gender-related stress—The measure of gender-related stress was adapted from a measure of stressful life events used in an ethnically diverse sample (Lobel et al., 2000). Scores on the original measure are correlated with other stress indicators, including state anxiety and perceived stress, and predict stress-related health outcomes (Lobel et al., 2000; Saunders, Lobel, Veloso, & Meyer, 2006). Adaptations were made to the original instrument by selecting the 15 stressors that appeared at face value to be related to gender. Participants reported on the occurrence of these stressors during the past year, including items such as "Have you been treated unfairly or with less respect than you deserve because you are a woman?" The modest internal consistency of item exposure for this measure (Cronbach's alpha = .52) indicates that gender-related stressors typically occurred independently of one another. For each stressor endorsed, participants rated how undesirable or negative it was on a 4-point scale ranging from 1 (not at all) to 4 (very much). Two indices were created: number of stressors endorsed (gender-related stress exposure) and mean appraisal.

Generic stress—The measure of generic stress exposure was also adapted from the instrument just described (Lobel et al., 2000), using 25 stressors that did not appear to have a race-or gender-related basis. Participants indicated their direct experience over the past year of 15 stressors (e.g., moving, getting married, being robbed, being involved in a serious car accident, having someone close die). An additional 10 items were stressors that may have happened to the participant or to a close friend or family member in the past year (e.g., got arrested, physical injury, illness, or hospitalization, trouble with alcohol or drugs). The generic stress exposure items yielded a Cronbach's alpha of .71. If the stressor did occur, the participant

indicated the person(s) who experienced the event by circling “self, ” “other,” or both “self” and “other.” For every item endorsed, participants rated how undesirable or negative each stressor was on the 4-point scale described above. Two indices were created: number of stressors endorsed and mean appraisal.

Distress—Psychological distress was chosen as an outcome for this study because there are consistent links between distress, physical health, morbidity, and mortality (Robinson, McBeth, & MacFarlane, 2003). Leading studies of race-and gender-related stress have also examined how these predict symptoms of distress in African Americans (Klonoff et al., 1999; Kwate et al., 2003; Moradi & Subich, 2003). The Hopkins Symptom Checklist (HSCL-58; Derogatis, Lipman, Rickles, Uhlephuth, & Covi, 1974), a brief version of the Symptom Checklist–90 is a reliable and valid measure of psychological and physical symptoms of distress. The HSCL-58 and more abbreviated versions have been used reliably with samples that include African American women (e.g., Klonoff et al., 1999). The HSCL-58 assesses five types of symptoms: anxiety, depression, obsession-compulsion, interpersonal sensitivity, and somatization, and yields a total symptom score. Respondents indicate “how much the problem has bothered or distressed you in the past month” on a scale from 0 (not at all) to 4 (extremely). Cronbach’s alpha for the five types of symptoms range from .84 to .87 (Derogatis et al., 1974). The HSCL-58 exhibited high internal consistency in this study ($\alpha = .96$ for total symptom score). We calculated two indices of distress: the Global Severity Index (GSI), a measure of overall psychological distress, which is computed as an average score of all 58 HSCL items, and the Positive Symptom Distress Index (PSDI), an average of only items endorsed with a nonzero response. The PSDI represents intensity of distress symptoms (Derogatis & Melisaratos, 1983).

Analysis Plan—Using AMOS (Arbuckle, 2006), we first examined fit of the hypothesized measurement model of global stress, namely, whether a higher order latent global stress factor could be fit to three latent subfactors: race-related stress, gender related stress, and generic stress. Each subfactor was modeled as a combination of exposure and appraisal. Correlations among residuals of the subfactors were allowed. The higher-order latent global stress factor was then used to test the hypothesis that multidimensionally defined stress predicts distress (see Figure 1). This structural model was tested first using GSI and then PSDI as an outcome variable. Once we determined which structural model (using GSI or PSDI as the outcome) was a better fit to the data based on goodness of fit indices, we examined a variation of this model, adding paths directly from race-related, gender-related, and generic stress to the outcome variable (distress), to determine the existence of additional independent associations. Finally, we examined an alternative model in which each of the three types of stress predicted distress without a latent global stress factor.

A variety of fit indices were examined for each model. A nonsignificant Chi-Square indicates that there is no difference between the model and the data, but this fit index is sensitive to sample size and to violation of normality assumptions (the value in both cases tends to be large). Based on recommendations that at least three classes of fit indices be examined (Jaccard & Wan, 1995), we used the following: the Comparative Fit Index (CFI), with scores closer to 1.0 indicating good fit; the Root Mean Square Error of Approximation (RMSEA), for which values of less than .10 are desired; and the Tucker-Lewis Index (TLI), for which values of .90 or greater indicate good fit. Lagrange Multiplier test values above 4.0 were also examined to determine if conceptually consistent model improvements could be made (Byrne, 2001).

Results

Descriptive Statistics

On average, the sample experienced low psychological distress and moderate levels of race-related, gender-related, and generic stress appraisal (see Table 1). Participants reported exposure to 57% of the race-related events, 21% of the generic stressors, and 19% of the gender-related stressors. Almost all (99.9%) study participants experienced some form of race-related stress, 91.6% experienced some form of gender-related stress, and 94.7% experienced some form of generic stress. Appraisal scores were similar across the three types of stress. Comparisons to another study using the IRRS suggest that race-related stress appraisal in the current sample is higher than that reported by Asian and Latino Americans and comparable to that reported by African American men and women (Utsey, Chae, Brown, & Kelly, 2002). Distress scores for the current sample are lower than published norms for noninstitutionalized persons (Derogatis et al., 1974). There are no data with which to compare the reports of gender-related and generic stress.

Age was the only sociodemographic variable correlated (inversely) with distress (see Table 1). Age was also inversely associated with race-related stress appraisal, gender-related stress exposure and appraisal, and generic stress appraisal. Neighborhood status was correlated with gender-related and generic stress exposure: Participants who live in neighborhoods where most of their neighbors do not share their ethnic background were more likely to report exposure to gender-related and generic stress than those who live among neighbors of shared ethnic background. However, neighborhood status was not correlated with distress, race-related stress exposure, race-related appraisal, gender-related stress appraisal, or generic stress appraisal. Based on this pattern of correlations, age was included in tests of the model examining prediction of distress by the multidimensional global stress factor, but neighborhood status was not.

Multidimensional Structure of Stress

The hypothesized higher-order model of global stress was a poor fit to the data, although all paths in the model were statistically significant, χ^2 (6, N = 189) = 27.03, $p < .001$, TLI = .79, CFI = .92, RMSEA = .14. Modification indices indicated that the model could be improved by allowing residuals of the stress *appraisal* measured variables to correlate. These correlations reflect the likelihood that measurement error involved in assessing appraisal is similar across the three types of stress. After these correlations were added, the resulting model fit well, χ^2 (3, N = 189) = 6.43, p = .06, TLI = .93, CFI = .99, RMSEA = .08, and was used in subsequent analyses. Standardized and unstandardized path coefficients are shown in Table 2.

Comparative Contribution of Stress Components

A model chi-square difference test (or likelihood ratio test) was conducted to compare the contribution of race-related, gender-related, and generic stress as components of the higher-order global stress factor. First, a baseline chi-square was calculated to allow the paths from global stress to the three types of stress to be estimated freely. Then a second chi-square value was calculated with these paths constrained to be equal. Results indicate that path coefficients from the higher-order global stress factor to its three latent components were not significantly different from one another, χ^2 difference (2, N = 189) = 4.31, p = .12.

Multidimensional Stress Prediction of Distress

When the PSDI was used as the distress outcome variable, the higher-order global stress factor was a significant predictor of distress (R^2 = .17). All paths were statistically significant, and the model was a good fit to the data, χ^2 (8, N = 189) = 12.31, p = .14, TLI = .96, CFI = .99,

RMSEA = .05. Fit indices were acceptable, but less strong for the structural model using GSI as the distress outcome, χ^2 (8, N = 189) = 16.70, p = .03 TLI = .93, CFI = .97, RMSEA = .08. As a result, subsequent analyses were conducted using the PSDI as the distress outcome variable.

This model was then examined with the addition of age as a predictor of distress. The path between age and distress was nonsignificant, and the inclusion of age in the model resulted in decreased fit, χ^2 (13, N = 189) = 25.14, p = .02, TLI = .92, CFI = .96, RMSEA = .07. A nested model comparison with the path from age to distress constrained to zero resulted in a nonsignificant chi-square difference test, χ^2 difference (1, N = 189) = .36, p = .55. This indicates that adding age as a predictor of distress did not significantly improve or diminish the more parsimonious model. Age was therefore not included in subsequent analyses.

We then examined whether the three types of stress had unique associations with distress beyond that represented by the association of global stress with distress. Direct paths were added between the race-related, gender-related, and generic stress factors to distress. The resulting model was a good fit, χ^2 (8, N = 189) = 12.3, p = .14 TLI = .96, CFI = .98, RMSEA = .05, but it was underidentified and could not yield parameter estimates for all three paths simultaneously. Therefore, each of the three paths was examined individually. None of the parameter estimates was significant (see Table 2).

Alternative Model

An alternative model with race-related, gender-related, and generic stress predicting distress independently (without the higher-order global stress factor) was examined. This model exhibited adequate fit, χ^2 (6, N = 189) = 11.61, p = .07, TLI = .93, CFI = .98, RMSEA = .07. According to fit indices, the higher order model was a better fit to the data than the alternative model. The Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC) were used to compare the models; smaller values indicate better fit. Values for the higher-order model (AIC = 52.31, BIC = 117.15) and the alternative model (AIC = 55.61, BIC = 126.92) suggest that the higher-order model was a better fit. Furthermore, none of the path estimates from race-related, gender-related, and generic stress to distress reached statistical significance in the alternative model (see Table 2).

Discussion

Results of this study indicate that stress in African American women can be operationally defined as the conjunction of three categories of events or conditions and women's perceptions of their stressfulness. That is, African American women's stress as examined in this study is the combination of burdens faced through racial and gender identity as well as burdens not directly related to race or gender. The multidimensional stress factor is significantly associated both with overall distress symptomatology (GSI) and with distress intensity (PSDI) and was a better fit to study data than a model in which race-related, gender-related, and generic stress were independent predictors of distress.

Generic stress, race-related stress, and gender-related stress made equivalent contributions to African American women's stress and their associations with distress were of similar magnitudes. None of the three types of stress had unique associations with distress beyond that represented by the association of global stress with distress; nor did any of the three types of stress have direct associations with stress without the higher order latent stress construct. These findings depart from the work of Moradi and Subich (2003), who found that when racism (operationalized as individual racism only) and sexism were included simultaneously, sexist events emerged as a unique predictor of distress. This difference in results may be explained by our use of a latent variable model, which reduced measurement error, and by differences in

stress measurement such as the broader conceptualization of race-related and gender-related stress and the inclusion of generic stress in the current study.

In the current study, race and gender play an important role in African American women's stress, which is consistent with the idea that these are central elements of identity (Constantine, 2001; Shorter-Gooden & Washington, 1996). There is evidence that African American women reject the distinction between racism and sexism (Yoder & Aniakudo, 1997), corroborating the ecological validity of including both of these domains in operational definitions of stress. Whereas findings from this study indicate that race, gender, and generic stress intersect for African American women, these three types of stress are typically separated by researchers, and sometimes one or more types are overlooked completely. Results of the current study suggest that the common construct that links or underlies African American women's experience of race-related, gender-related, and generic stress is what predicts distress, and not the three categories of stress in and of themselves.

Why do these three stress domains intersect in African American women? Race and gender identities are closely interrelated organizing properties that ubiquitously influence interpersonal engagement, status, power experience, and therefore stress exposure and appraisal (Collins et al., 1995; Yoder & Aniakudo, 1996). It is striking that the stress model examined in the present study fit a diverse sample of women who varied across sociodemographic characteristics including relationship and family status, income and education, and occupation. This suggests that the multidimensionality of stress in African American women may apply across other diverse individual characteristics.

African American women in this study appear to have experienced a more narrow range of distress symptoms than population norms, but the symptoms they did experience occurred with moderate intensity (between "a little bit" and "quite a bit" distressing). Participants reported moderate appraisals of race-related, gender-related, and generic stress. Furthermore, only age and neighborhood ethnic composition were associated with stress or distress. Stress did not differ for women with greater education or income, characteristics that have been thought to decrease vulnerability to stress (e.g., Adler & Snibbe, 2003). This might be attributable to the fact that we examined a broad spectrum of stressors that encompass experiences to which women with greater education or income are probably not less susceptible. It is intriguing that women who lived in more integrated neighborhoods were more likely to report gender-related and generic stress compared to those who lived in more ethnically homogeneous neighborhoods. African American households in more integrated neighborhoods have higher socioeconomic status than those in neighborhoods that are less integrated (Iceland & Wilkes, 2006). The roles that African American women fulfill to maintain this higher status (often fulltime employment along with child rearing responsibilities) may expose them to a greater variety of generic and gender stressors.

Limitations and Directions for Future Research on Stress in African American Women

The findings of this study help fulfill the imperative voiced by other researchers for more comprehensive conceptualization of stress in African American women (Klonoff et al., 1999; Moradi & Subich, 2003). A strength of the study was that it simultaneously examined race, gender, and generic stress and incorporated both exposure to stressful conditions and women's perceptions or appraisals of those conditions, consistent with transactional theories of stress (e.g., Lazarus & Folkman, 1984). Exposure and appraisal were correlated, confirming that the conditions examined in this study were experienced as stressful. However, one limitation of this study involves the type of stressful conditions assessed and their comparability across the three categories examined. The measure of race-related stress (IRRS) includes stressors that are likely to occur more regularly than those used to assess generic and gender-related stress. In addition to items that assess direct experiences with race-related events, some

IRRS items assess respondents' observations (e.g., "You have observed situations where other Blacks were treated harshly or unfairly"). Although such items allow a wide range of race-related experiences to be included, this approach distinguishes the measurement of race-related stress from gender-related and generic stress, which do not assess observations and include events that are unlikely to occur in a given year (e.g., "did you give birth," "have you gotten fired or laid off from work"). These differences in measurement may help to explain why participants had greater exposure to race-related events than gender-related and generic stressors. Appraisal scores, which were independent of number of stressors, were equivalent across the three types of stress.

An additional limitation related to comparability of the three types of stress involves the concept of network stress. Participants were instructed to consider the stress of close friends or family members when completing the race-related items and a subset of the generic stress items, but they were not instructed to consider network stress for the gender-related items. The IRRS was originally designed to include network stress based upon logic that group identity produces equivalent outcomes for stressors experienced by a member of one's racial group (Utsey et al., 1996). Experts in the area of gender-related stress have also noted that gender identity contributes to women's experiences of stress (Landrine & Klonoff, 1997). However, network events are usually not assessed in measures of gender-related stress (Klonoff & Landrine, 1995; Krieger, 1990). An important goal for further research is to include network stress in all measures but maintain its distinction from personally experienced stress to examine how both may predict outcomes.

Participants reported stressful events that happened in the last year and symptoms of distress that they experienced in the last month. Although it is common to assess stress by using retrospective methods, a prospectively designed study would provide greater confirmation that stress predicts distress and help clarify the direction of association among hypothesized variables. The addition of qualitative methods to subsequent research on this topic would also enable participants to report stress experiences that may be personally significant but absent from standardized instruments. This would be particularly helpful in examining the ways in which gender and race intersect and extending operational definitions of ethgendered prejudice and similar concepts such as gendered-racism, and raced-sexism (Jackson et al., 2001; Jeffries & Ransford, 1980). Including physiological indicators of stress (e.g., cortisol, blood pressure, and heart rate variability), additional outcomes of stress, and potential moderators of the effects of stress on physical and psychological health outcomes in African American women (such as coping strategies) will also strengthen confidence in the validity and power of these associations.

Of great value would be research to examine the degree of individuals' ethnic and gender consciousness to determine how they influence the intersection of race-related, gender-related and generic stress and the association of these types of stress with psychological and physical health. The heterogeneity of African American women must also be considered. For instance, lesbian, gay, and bisexual African American women report higher levels of psychological distress and are less likely to seek mental health services compared to their heterosexual counterparts (Matthews & Hughes, 2001; Mays, Cochran, & Roeder, 2003). These women are also likely to experience heightened gender-related stress and discrimination. The current model could also be extended to more completely address the multidimensional nature of stress for African American women by including a well-defined measure of class-related stress.

Conclusions

Results of the current study illustrate that stress related to central elements of identity, namely race and gender, cohere with generic stress to define the stress experience of African American

women. One element of stress should not be considered without the others (Clark et al., 1999; Giscombé & Lobel, 2005; Moradi et al., 2003; Williams et al., 2003). Failure to do so may result in underestimation of stress in African American women and inability to detect its impact on psychological, physical, and other outcomes.

The findings of this study are timely given commitments by the federal government to uncover causes of racial disparities in health through research on stress, mental health, and related biobehavioral factors (United States Department of Health and Human Services, 2000). As we seek to determine how stress leads to outcomes such as cardiovascular disease, obesity, adverse birth outcomes, and depression in African American women, it is essential to use a comprehensive, evidenced-based approach to define and measure stress for this population. The present study contributes to advancements in this area of research by offering an empirically tested, conceptually powerful multidimensional operationalization of stress in African American women.

Acknowledgements

Cheryl L. Woods-Giscombé received support from National Institutes of Health Grant T32NR007091 during work on this project. We are grateful to Angela Cotten, Anne Moyer, and Nancy Squires for their helpful comments on earlier versions of this article and Sharon Christ for statistical consultation.

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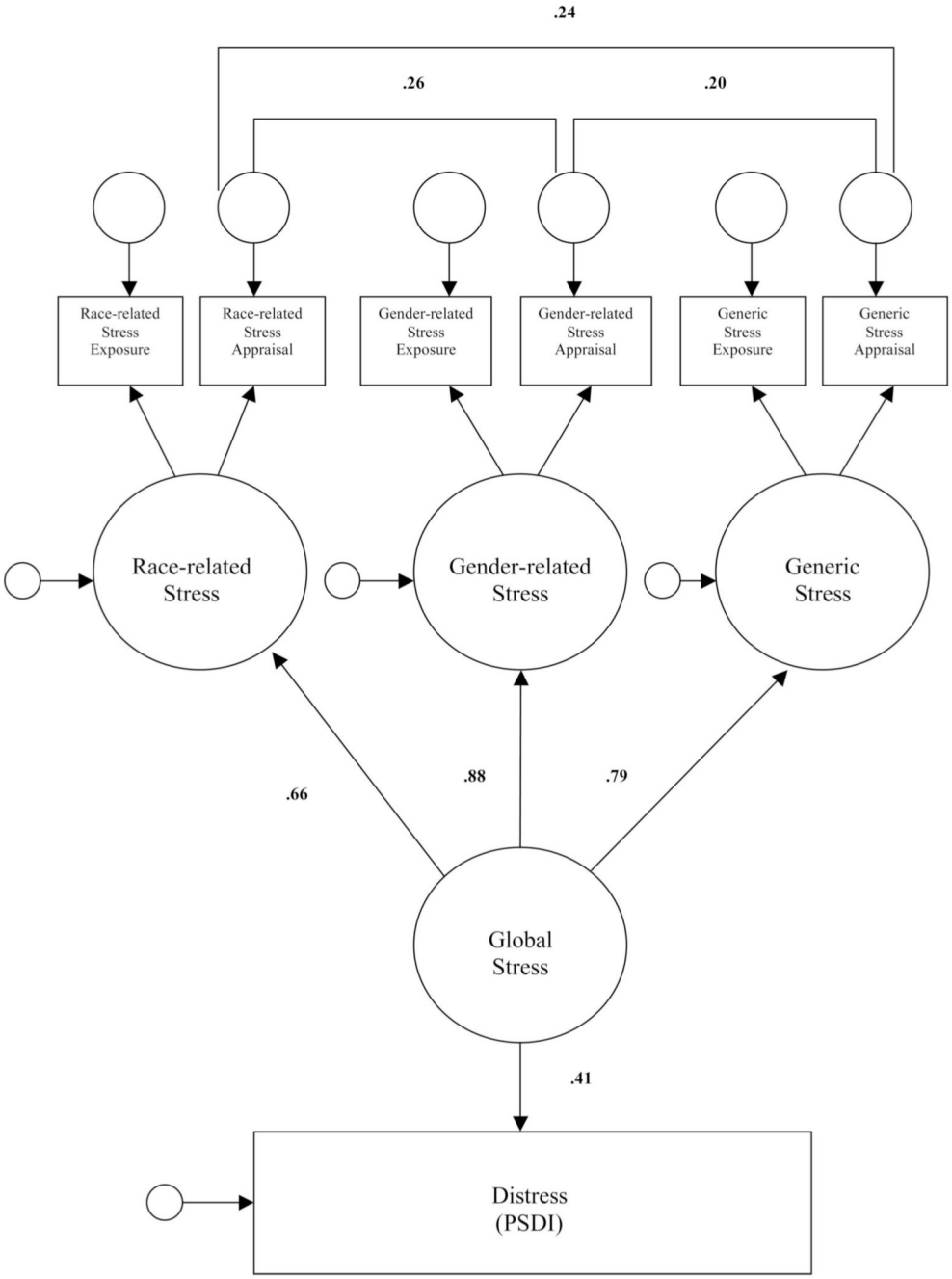

Figure 1.

Multidimensional model of stress predicting distress (PSDI), χ^2 (8, N = 189) = 12.31, p = .14, TLI = .96, CFI = .98, RMSEA = .05 all paths significant at $p < .05$ or less. Path coefficients are standardized. For the sake of simplicity, coefficients for errors are not displayed. Only significant correlations between residual terms are displayed.

Table 1

Correlations, Ranges, Means, and Standard Deviations of Stress, Distress and Demographic Variables

	1	2	3	4	5	6	7	8
1. Distress-GSI	—							
2. Distress-PSDI	.80***	—						
3. Race stress exposure	.35***	.27***	—					
4. Race stress appraisal	.22***	.18**	.442***	—				
5. Gender stress exposure	.38***	.31***	.36***	.31***	—			
6. Gender stress appraisal	.26***	.22***	.23***	.37***	.48***	—		
7. Generic stress exposure	.42***	.29***	.28***	.37***	.59***	.35***	—	
8. Generic stress appraisal	.26***	.22***	.04	.26***	.26***	.34***	.40***	—
9. Age	−.15	−.19***	−.02	−.21**	−.21***	−.16	−.35***	−.25**
10. Job status[a]	−.18	.11	.09	−.05	.03	.07	−.06	−.09
11. Education[b]	−.11	.14	−.12	−.04	.06	−.01	−.07	−.02
12. Income[c]	−.14	.15	−.07	−.05	−.09	−.03	−.14	−.07
13. Children[d]	.11	.06	.08	−.07	.02	.05	−.07	−.05
14. Number of children[e]	.06	.01	.08	−.08	−.05	.15*	−.10	−.07
15. Marital status[f]	.01	.08	.00	.05	.20***	−.03	.09	−.04
16. Neighborhood[g]	.05	.08	−.02	−.02	.24***	.06	.19**	.03
17. Student status[h]	−.07	.08	.90	.08	.08	.06	.12	−.02
Range	0–3	0–3	0–23	1–4	0–15	1–4	0–25	1–4
Mean	.64	1.28	13.07	2.59	2.90	2.40	5.22	2.71
Standard deviation	.43	.31	5.40	.71	1.97	1.03	3.41	.88

[a] Job Status: 0 = not employed; 1 = part time; 2 = full time.

[b] Education: 1 = <11 years; 2 = high school; 3 = trade/tech school; 4 = college, not graduated; 5 = associate's degree; 6 = college, graduated; 7 = some grad school, did not finish; 8 = Master's/Terminal degree.

[c] Income: 1 = less than 15K; 2 = 15K to 25K; 3 = 26K to 50K; 4 = 51K to 75K; 5 = 76K to 100K; 6 = > 100K.

[d] Children: 0 = No; 1 = Yes.

[e] Num. Children: coded as continuous variable.

[f] Marital status: 0 = single, divorced, separated, or widowed; 1 = Married, living as if married, committed, not living together.

[g] Neighborhood: 1 = all share ethnic background; 2 = most share background; 3 = half share background; 4 = very few share background; 5 = none share background.

[h] Student status: 0 = Not a student; 1 = part time student; 2 = full time student.

** $p < .01$.

*** $p < .001$.

Table 2

Path Coefficients, Standard Errors, and Significance Levels of Models

Path	Unstandardized	Standardized	*SE*	*p*
Measurement model				
RRS→RR*SE*	2.69***	.66	.45	<.001
RRS→RRSA	.35***	.67	.06	<.001
GRS→GR*SE*	.87***	.90	.30	<.01
GRS→GRSA	.27***	.54	.08	<.001
GS→G*SE*	2.07***	.97	.58	<.001
GS→GSA	.22***	.40	.05	<.001
Global stress→RRS	.85***	.65	.19	<.001
Global stress→GRS	1.78**	.87	.71	<.01
Global stress→GS	1.23**	.78	.40	<.01
Structural model				
RRS→RR*SE*	2.72***	.67	.45	<.001
RRS→RRSA	.34***	.66	.06	<.001
GRS→GR*SE*	.85**	.90	.27	<.01
GRS→GRSA	.27***	.54	.07	<.001
GS→G*SE*	1.93******	.94	.53	<.001
GS→GSA	.22***	.42	.05	<.001
Global stress→RRS	.88***	.66	.19	<.001
Global stress→GRS	1.82**	.88	.66	<.01
Global stress→GS	1.31**	.79	.40	<.01
Global stress→distress	.43**	.41	.14	<.01
Additional direct paths to structural model				
RRS→distress	.03	.12	.03	.38
GRS→distress	−.02	−.18	.06	.68
GS→distress	−.09	−.05	.04	.80
Alternative model				
RRS→RR*SE*	3.70***	.69	.49	<.001
RRS→RRSA	.44***	.65	.06	<.001
GRS→GR*SE*	1.77***	.90	.16	<.001
GRS→GRSA	.56***	.54	.08	<.001
GS→G*SE*	3.17***	.93	.36	<.001
GS→GSA	.36***	.93	.07	<.001
RRS→distress	.05	.17	.04	.15
GRS→distress	.05	.18	.04	.21
GS→distress	.03	.11	.04	.38

Note. RRS = Race-related stress; RRSE = race-related stress exposure; RRSA = race-related stress appraisal; GRS = gender-related stress; GR*SE* = gender-related stress exposure; GRSA = gender-related stress appraisal; GS = generic stress; G*SE* = generic stress exposure; GSA = generic stress appraisal. All *p* values are for the ratio of unstandardized estimates/SE.

** $p < .01$.

*** $p < .001$.