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## Health-Related Quality of Life of African American Breast Cancer Survivors Compared With Healthy African American Women

### KEY WORDS

African Americans  
Breast neoplasm  
Female  
Health-related quality of life  
Survivors

**Background:** The diagnosis and treatment of breast cancer can result in an array of late cancer-specific side effects and changes in general well-being. Research has focused on white samples, limiting our understanding of the unique health-related quality of life outcomes of African American breast cancer survivors (BCSs). Even when African American BCSs have been targeted, research is limited by small samples and failure to include comparisons of peers without a history of breast cancer. **Objective:** The purpose of this study was to compare health-related quality of life of African American female BCSs with that of African American women with no history of breast cancer (control group). **Methods:** A total of 140 women (62 BCSs and 78 controls), 18 years or older and 2 to 10 years postdiagnosis, were recruited from a breast cancer clinic and cancer support groups. Participants provided informed consent and completed a 1-time survey based on the proximal-distal health-related quality of life model of Brenner et al (1995).

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This research was supported by grant R03-CA97737 from the National Institutes of Health/National Cancer Institute, Mary Margaret Walther Program,

Walther Cancer Institute, and grant 64194 from the Robert Wood Johnson Foundation, Nurse Faculty Scholar Award (primary investigator: Dr Von Ah).

The authors have no conflicts of interest to disclose.

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Accepted for publication September 22, 2011.

DOI: 10.1097/NCC.0b013e3182393de3

**Results:** After adjusting for age, education, income, and body mass index, results show that African American BCSs experienced more fatigue ( $P = .001$ ), worse hot flashes ( $P < .001$ ), and worse sleep quality ( $P < .001$ ) but more social support from their partner ( $P = .028$ ) and more positive change ( $P = .001$ ) compared with African American female controls. **Conclusions:** Our results suggest that African American female BCSs may experience unique health-related outcomes that transcend age, education, socioeconomic status, and body mass index. **Implications for Practice:** Findings suggest the importance of understanding the survivorship experience for particular racial and ethnic subgroups to proactively assess difficulties and plan interventions.

African American breast cancer survivors (BCSs) may experience an array of late cancer-specific side effects, disruption in general physical and mental functioning, fluctuating affective states, and changes in life satisfaction. In a previous comprehensive review of the literature, findings from 26 qualitative and quantitative descriptive studies were synthesized to summarize what is known regarding the health-related quality of life of African American BCSs.<sup>1</sup> Based on this review, some consistent patterns in quality of life deficits were noted (eg, treatment-related physical symptom distress), as well as favorable aspects of quality of life that occurred toward the distal end of the health-related quality of life continuum (eg, heightened spirituality, positive growth, and overall well-being) when comparing African American BCSs to survivors of other racial and ethnic backgrounds. This work demonstrated the importance of evaluating health-related quality of life outcomes across a continuum from proximal (disease-specific functioning) to global (overall well-being). A limitation noted in the existing literature was that most studies did not include a race-matched comparison group of women without breast cancer. Some studies did not include any comparison group and others used non-African American women for comparison. Because African American women without cancer represent the strongest comparison group for African American women with breast cancer, it is important to compare health-related quality of life in these 2 groups.

The purpose of this study was to determine whether health-related quality of life differed between African American women with and without a history of breast cancer. The specific aim was to compare African American BCSs with African American women with no history of breast cancer on disease-specific, generic, and global quality of life measures. Based on previous research,<sup>1</sup> the study hypothesis was that African American BCSs would have greater psychological and physical functioning concerns but similar generic and global well-being relative to African American women with no history of breast cancer.

## Theoretical Framework

The proximal-distal approach of Brenner and colleagues<sup>2</sup> to conceptualizing multiple health-related quality of life outcomes was used to guide the study (Figure). This model proposes that health-related quality of life outcomes exist on a continuum of interrelated domains extending from proximal (ie, disease-

specific functioning) to distal (ie, global well-being). The domains of disease-specific functioning; general physical, psychological, and role functioning; affective states; and life satisfaction were examined. These domains, although conceptualized separately, are interrelated, and as a result, survivors may have health-related quality of life concerns in more than 1 domain. The domain “disease-specific functioning” consists of the more direct effects of the disease and its treatment, typically on outcomes directly influenced by physical and mental changes (eg, attention, fatigue, hot flashes, and event-related [breast cancer] stress). The “general physical, psychological, and role functioning” domain involves more general outcomes that tend to be affected by the more specific proximal changes or their implications. Therefore, this domain includes general physical, psychological, and coping factors requisite to perform activities of daily living. Outcomes at this level might include, for example, sleep and overall physical functioning, as well as resources such as satisfaction with partner social support and spirituality. The most distal domains in the continuum are “affective states” and “life satisfaction.” Affective states include factors associated with emotional and psychological states (eg, depressive symptoms and positive change), and life satisfaction refers to global well-being (ie, overall well-being). Only the more distal levels correspond to quality of life as historically conceptualized, but many investigators agree that outcomes should be measured at multiple levels to best understand the impact of disease and treatment.<sup>3-5</sup>

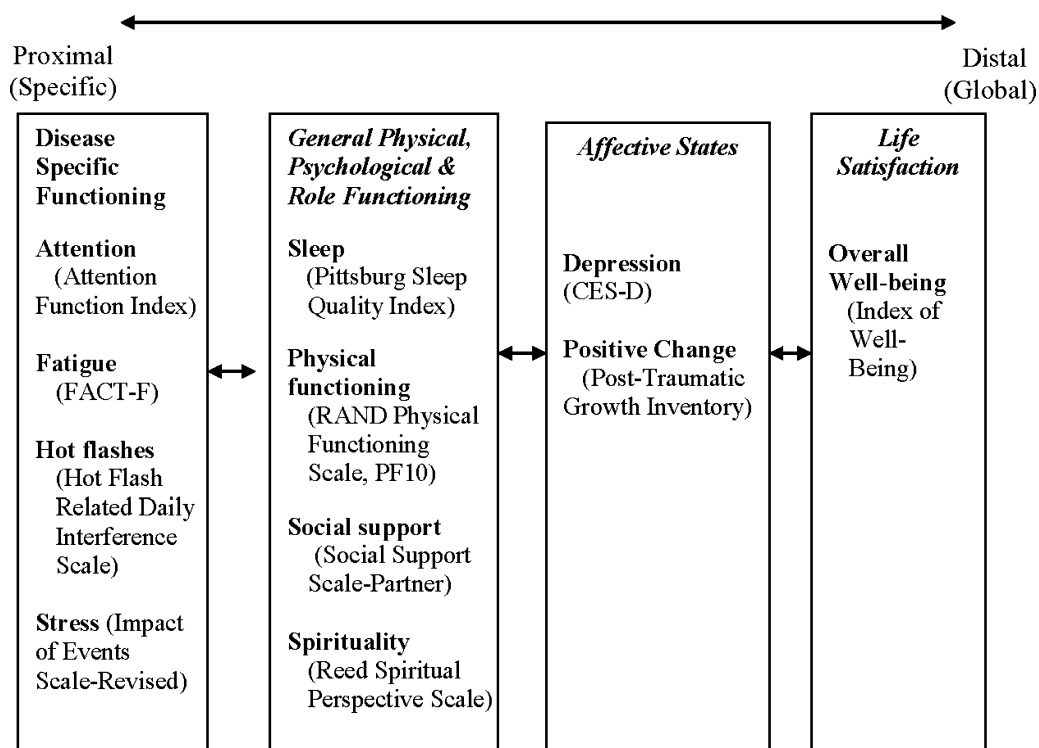
A 2-step approach was used to identify important proxy variables for each domain of the model of Brenner et al. First, a comprehensive review of the literature was conducted to examine quality of life issues for African American BCSs.<sup>1</sup> Important factors from this review were identified. Second, focus groups were conducted with African American BCSs (description of the procedure in Kooiken et al<sup>6</sup>) to identify and/or confirm variables of importance and select specific measures.

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## ■ Methods

### Design

This was a cross-sectional, descriptive study using self-reported survey data to compare health-related quality of life between African American BCSs and healthy African American women.



**Figure ■** Study framework and measures: proximal-distal framework adapted from Brenner et al,<sup>2</sup> with corresponding variables and measures under each domain. Abbreviations: CES-D, Center for Epidemiologic Studies–Depression Scale; FACT-F, Functional Assessment of Cancer Therapy–Fatigue.

## Sample

A convenience sample of female BCSs was recruited by staff from university cancer center clinics, cancer center medical record review, and self-referral. Inclusion criteria and rationale included the following: non-Hispanic African American women who were (a) 2 to 10 years postdiagnosis for nonmetastatic breast cancer (stage 0-IIIB) (to identify late and long-term effects of breast cancer diagnosis and treatment), (b) 18 years or older (to increase homogeneity of the sample), and (c) able to read and understand English (to ensure ability to complete selected instruments). The healthy African American comparison women were also 18 years or older and able to read and understand English and had no personal history of breast cancer.

## Procedure

Breast cancer survivors who were seen in the clinics, interested in the study, and gave their permission were contacted by the research staff. After determining eligibility, a research assistant obtained consent and distributed the paper survey packet. Participants completed the self-administered questionnaires and returned them in a self-addressed stamped envelope. To ensure an adequate sample, eligible participants were also recruited through community events (breast cancer support groups and fundraisers). These women were mailed an introductory letter with information about the objectives of the study, instructions for completing the questionnaires, consent form, survey packet, and a stamped envelope to return study materials. The stan-

dardized instructions for completing the questionnaires included the length of time the participant should consider for each of the variables of interest and, therefore, were intended to ensure the accurate completion of the instruments.

Women for the comparison group were recruited through the same community advertisements and events (eg, community events sponsored by the Black Nurses Association). These women were given or mailed the consent form, survey packet with instructions, and stamped envelope to return completed study materials.

All study participants received a \$25 gift certificate upon return of the completed survey. The study was approved by the university institutional review board. All women provided written informed consent and authorization to use their health information.

## Study Variables and Measures

Study measures were selected based on the model of Brenner et al,<sup>2</sup> a review of literature, and focus groups as described above (Figure and Table 1). Instruments are listed in Table 1, with number of items, possible score ranges, and Cronbach  $\alpha$  values in the present study. Standard administration instructions and scoring for all scales were used as described by the original scale developers or prior literature. Because there were only minimal differences in internal consistency reliabilities of the measures between the 2 groups, Cronbach  $\alpha$  coefficients are reported for the combined samples. This information is important because it adds to the literature regarding the

**Table 1 • Scale Descriptions and Health Outcome Variables**

Scale Name and Source	No. of Items	Possible Score	Cronbach $\alpha$
Disease-specific functioning			
Attention (Attention Function Index)	16	0–10	.90
Fatigue (FACT-F)	13	0–42	.91
Hot flashes (Hot Flash–Related Daily Interference Scale)	9	0–88	.95
Stress (Impact of Events Scale–Revised)	20	0–80	.94
General physical and mental functioning and role performance			
Sleep (Pittsburgh Sleep Quality Index)	7	0–21	.75
Physical functioning (RAND Physical Function, PF-10)	10	0–100	.92
Partner social support (Northouse Social Support Scale)	7	7–35	.83
Spirituality (Reed Spirituality Scales)	10	1–6	.94
Affective state			
Depression (CES-D)	20	0–60	.88
Positive Change (Posttraumatic Growth Inventory)	21	0–105	.97
Life satisfaction			
Overall well-being (Index of Well-being)	9	9–63	.93

Abbreviations: CES-D, center for epidemiologic studies–depression scale; FACT-F, functional assessment of cancer therapy–fatigue.

reliability of the instruments in a larger sample of African American women.

#### DEMOGRAPHIC, MEDICAL, AND TREATMENT-RELATED FACTORS

Demographic, medical, and treatment-related factors were collected on an investigator– developed form. Self-reported demographics included age, education, marital status, income, and health insurance provider information. Medical and treatment-related variables included body mass index (BMI), time since diagnosis, stage, type of surgery, and type of adjuvant therapy. These data were self-reported and validated through medical records review by trained study staff.

#### DISEASE-SPECIFIC FUNCTIONING SCALES

**Attention.** The attention domain of cognitive functioning was measured with the Attention Function Index.<sup>7</sup> Items assess functioning in following through on plans, finishing projects, and planning daily activities. A 10-point response scale (0 = not at all to 10 = extremely well) was adapted from the original linear visual analog scale (100 mm). Scale items were averaged to compute a mean scale score, with higher scores indicating better attention. This instrument has been used in healthy samples and a variety of cancer patient populations, including breast cancer patients.<sup>8,9</sup> Convergent validity has been demonstrated through statistically significant correlations with the concentration item from the Symptom Distress Scale and with the Cognitive Failures Questionnaire ( $r = -0.58$  and  $-0.60$ , respectively). Divergent validity was established with the Profile of Mood States–Confusion subscale ( $r = -0.59$ ).<sup>9</sup>

**Fatigue.** Fatigue was measured with the Functional Assessment of Cancer Therapy–Fatigue (FACT-F),<sup>10</sup> which assesses symptoms of fatigue. The scale uses a 5-point response scale of perceived severity (0 = not at all, 4 = very much), with higher total scores indicating greater fatigue. This instrument was designed and validated for cancer patients and has shown strong

test-retest consistency (0.90) and internal consistency (.95).<sup>11</sup> Convergent validity has been demonstrated through high correlations with the Piper Fatigue Scale and Profile of Mood States–Fatigue subscale ( $r = 0.77$  and  $0.83$ , respectively).<sup>11</sup>

**Hot flashes.** The Hot Flash–Related Daily Interference Scale (HFRDIS)<sup>12</sup> was used to measure the degree that hot flashes interfered with 9 daily life activities, including work, social activities, leisure activities, sleep, mood, concentration, relations with others, sexuality, and enjoyment of life, during the previous week. Respondents rate the level of interference based on their experience in the last 4 weeks, and response items for each activity range from 0 (did not interfere) to 10 (interfered a lot), with higher scores indicating more interference. The HFRDIS has demonstrated strong internal consistency (.96), and it correlates significantly with other hot flash instruments in breast cancer patients.<sup>12</sup>

**Stress.** The Impact of Event Scale–Revised<sup>13</sup> was used to assess 3 symptom clusters associated with posttraumatic stress disorder: hyperarousal, intrusion, and avoidance. The Impact of Event Scale–Revised asks respondents to rate their stress level based on the last 4 weeks regarding a traumatic event; survivors rated their stress related to their breast cancer diagnosis and treatment, and healthy control women rated their stress related to a stressful life event (eg, serious personal illness, illness of a family member, loss of loved one, or loss of a job). A 5-point response scale is used, ranging from 0 = not at all to 4 = extremely. Subscale scores are averaged and summated to create a total score. Higher scores indicate higher stress. High levels of internal consistency have been previously reported (.96),<sup>14</sup> and test-retest reliability across a 6-month interval ranged from 0.89 to 0.94.<sup>13</sup>

#### GENERAL PHYSICAL, PSYCHOLOGICAL, AND ROLE FUNCTIONING

**Sleep.** Sleep quality over the past 4 weeks was measured by the Pittsburgh Sleep Quality Index.<sup>15</sup> The scale yields 7 “component” scores, including subjective sleep quality, sleep latency, sleep

duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction. Component scores are summed to create a global score. Global scores higher than 5 indicate poor sleep quality and scores of 8 or higher have been linked to daytime fatigue in BCSs. The Pittsburgh Sleep Quality Index has solid psychometric properties, including strong internal consistency (Cronbach  $\alpha = .83$ ) and overall consistency using test-retest over a 10-week period of time for the 7 factors ranging from 0.68 to 0.79.<sup>15</sup>

*Physical function.* Physical function was measured by the widely used 10 activity items of the RAND 36-item Short Form Health Survey developed at RAND as part of the Medical Outcomes Study.<sup>16</sup> The scale assesses the current extent that health limits physical activities, and higher scores reflect fewer limitations. The Physical Functioning scale is a commonly used instrument to measure physical functioning that has strong psychometric properties (Cronbach  $\alpha = .93$ )<sup>16</sup> and has been used in BCSs.<sup>17</sup>

*Social support.* Social support was assessed with the Northouse Social Support Scale.<sup>18</sup> The scale measures the current level of social support using a 5-point response scale (1 = strongly disagree to 5 = strongly agree), with higher total scores reflecting more social support. The internal reliability of this scale has been reported as 0.90 in BCSs, and construct validity has been confirmed by significant correlations with subscales on the Family Environment Scale.<sup>18</sup>

*Spirituality.* The spiritual perspective in an individual's life was measured by the Reed Spiritual Perspective Scale.<sup>19</sup> This is a 10-item instrument designed to measure the extent to which one currently holds certain spiritual views and engages in spiritually related interactions. Items are scored on a 6-point Likert-type scale, with total scores ranging from 1 = strongly disagree to 6 = strongly agree and higher scores indicating greater spiritual perspective. The scale has demonstrated high internal (0.93–0.95) and satisfactory test-retest (0.57–0.68) reliability in several samples and has demonstrated associations with change in clinical status as well as spiritual views.<sup>19</sup>

## AFFECTIVE STATES

*Depression.* Self-reported depressive symptoms were measured with the Center for Epidemiologic Studies–Depression Scale (CES-D).<sup>20</sup> This scale measures symptoms that have occurred in the past week and uses a 4-point response scale (0 = rarely or none of the time [ $<1$  day] to 3 = most or all of the time [5–7 days]). Higher scores indicate greater risk for depression. A score of 16 or higher suggests clinical depression. The CES-D has shown strong correlation with other measures of depression and has good internal consistency.<sup>20</sup>

*Positive change.* The Post-Traumatic Growth Inventory was used to assess current perceived positive change after trauma.<sup>21</sup> This scale has 5 subscales, including relating to others, new possibilities, personal strength, spiritual change, and appreciation of life. A 6-point response scale ranges from 1 = did not experience this change to 5 = experienced this change to a very great degree. Subscale scores are summed to create a total scale score. Higher scores indicate more positive change. Scores from

the instrument were shown to differentiate between BCSs and matched controls in several studies and to exhibit high levels of internal consistency (0.87)<sup>22</sup>

## LIFE SATISFACTION

Present life satisfaction, a measure of overall or global well-being, was assessed with the Index of Well-being scale.<sup>23</sup> This scale measures current well-being, using an item response format with a 9-point semantic differential type scale. For example, to the stem “my present life is,” responses range from 1 = boring to 7 = interesting. Responses are summed for a total score. Higher scores reflect greater life satisfaction. The Index of Well-being scale was reported to have strong internal consistency in a previous study with BCSs ( $n = 134$ , Cronbach  $\alpha = .92$ )<sup>8</sup> and validity as it has been shown to correlate significantly with life quality and psychological adjustment.<sup>24</sup>

## Data Analysis

Descriptive statistics were used to describe the sample characteristics and distribution of all variables. African American survivors and controls were compared on health-related quality of life outcome measures using analysis of covariance adjusting for age, income, years of education, and BMI. In these models, each health outcome was examined separately. The covariates were adjusted for based on the following rationale. Age and income have been shown in previous research to be important factors in assessing quality of life and, therefore, were viewed as important and potentially confounding covariates and were included in the model regardless of whether they significantly differed between the 2 groups.<sup>1</sup> Other variables were included if their  $P$  value was less than a liberal Cronbach  $\alpha$  of .10 (Table 2), including years of education and BMI. A liberal Cronbach  $\alpha$  was chosen for the adjustment selection to ensure a conservative approach in subsequent analysis of covariance models. Controlling for these confounding variables is important because it addresses concerns regarding equivalence between the 2 groups in this study and also addresses a limitation of previous studies, which have failed to address variables known to significantly impact quality of life.<sup>1,25</sup> The SAS software was used for all analyses.

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## ■ Results

A total of 165 women were screened and determined eligible for study entry, with 140 (86%) consenting to participate. Of these, 62 were African American BCSs and 78 were African American comparison women. These sample sizes provide 80% power for detecting a medium effect size of 0.48 standard deviation units between 2 group means.

The African American BCSs were from 2 to 10 years post-diagnosis, with a mean (SD) of 5 (2.7) years posttreatment. Most survivors had stage I to IIB breast cancer (85.7%), with the remaining diagnosed with stage III (14.3%) disease. In

**Table 2 • Group Differences in Demographics**

	AA Survivor (n = 62)		AA Comparison (n = 78)		P <sup>a</sup>
	Mean	SD	Mean	SD	
Current age, y	57.3	8.4	52.2	15.4	.015
Number of years of education	12.5	2.3	13.3	2.8	.069
Body mass index, kg/m <sup>2</sup>	32.1	7.3	29.6	6.1	.030
Time since treatment, y	5.0	2.7	–	–	–
	n	%	n	%	
Marital status					.550
Married or in a long-term relationship	13	21.3	20	26.3	
Other	48	78.7	56	73.7	
Highest level of education					.945
Greater than high school	34	55.7	45	57.7	
High school graduate/general equivalency diploma	12	19.7	16	20.5	
Less than high school	15	24.6	17	21.8	
Income					.212
<\$15,000	31	50.8	34	43.6	
\$15,001–\$30,000	14	23.0	12	15.4	
\$30,001–\$75,000	7	11.5	19	24.4	
>\$75,000	2	3.3	6	7.7	
Don't know	7	11.5	7	9.0	

Abbreviation: AA, African American.

<sup>a</sup>P value from Fisher exact test for categorical data and 2-sample *t* test for continuous data.

addition, most survivors had been treated with mastectomy (60.3%) and had both chemotherapy and radiation therapy (54.6%) as part of their treatment.

African American BCSs were significantly older (mean [SD], 57.3 [8.4] years) compared with the healthy comparison group (mean [SD], 52.2 [15.4] years) and, on average, had a higher BMI (mean, 32.1 vs 29.6 kg/m<sup>2</sup>) (Table 2). Most African American BCSs and comparison women were not married or in a long-term relationship. Most had a high school degree or

higher, nonprivate health insurance (Medicare or Medicaid), and incomes of less than \$30,000 (Table 2).

### Differences Between African American BCSs and African American Healthy Comparison Women

Health-related quality of life differences between groups are shown in Table 3. Reported means are “least squares” means,

**Table 3 • Differences in Measures for African American Breast Cancer Survivors Compared with Healthy Controls**

	African American Survivor (n = 62)			African American Control (n = 78)			P <sup>a</sup>	Effect Size	95% CI for Effect Size
	n	LsMean	SD	n	LsMean	SD			
Disease-specific functioning									
Attention	53	6.4	1.8	70	6.6	1.7	.417	−0.14	−0.49 to 0.20
Fatigue	53	17.8	11.5	70	12.1	10.8	.004	0.52	0.17 to 0.87
Hot flashes	53	20.9	21.0	69	5.2	19.6	.000	0.79	0.44 to 1.13
Stress	53	13.8	16.1	69	16.1	15.1	.399	−0.15	−0.50 to 0.20
General physical, mental, and role functioning									
Sleep	52	9.0	4.2	70	6.1	4.0	.000	0.71	0.36 to 1.06
Physical functioning	53	61.8	28.2	70	70.8	26.5	.062	−0.33	−0.68 to 0.01
Partner social support	16	27.8	5.7	30	23.5	5.5	.021	0.79	0.14 to 1.43
Spirituality	53	5.4	0.9	70	5.2	0.8	.294	0.19	−0.16 to 0.53
Affective states									
Depressive symptoms	53	12.2	11.7	70	11.6	11.0	.757	0.05	−0.29 to 0.40
Positive change	53	75.3	30.6	69	58.1	28.6	.001	0.59	0.24 to 0.94
Life satisfaction									
Life satisfaction	52	11.7	3.2	70	11.9	3.0	.709	−0.07	−0.42 to 0.28

Abbreviations: BCSs, breast cancer survivors; CI, confidence interval around effect size; LsMean, least squares (ie, adjusted) mean.

<sup>a</sup>P < .05.

which are adjusted by the model for age, income, years of education, and BMI. In the domain of disease-specific functioning, African American survivors experienced more fatigue ( $P = .004$ ) and worse hot flashes ( $P < .001$ ) but similar ratings of attention and event-related stress. In the domain of general physical, psychological, and role functioning, African American BCSs reported worse sleep quality ( $P < .001$ ) but higher partner support ( $P = .021$ ) than did comparison women. There were no group differences in physical functioning or spirituality. For affective states and life satisfaction, African American BCSs reported more positive change ( $P = .001$ ) but similar depressive symptoms and overall well-being relative to comparison women. The 95% confidence interval is reported for the effect size for each comparison in Table 3.

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## ■ Discussion

This comparative study of African American BCSs and African American women without a history of cancer comprehensively assessed health-related quality of life using Brenner and colleagues' proximal-distal continuum. Based on previous research, it was hypothesized that African American BCSs would have greater psychological and physical functioning concerns but similar generic and global well-being relative to African American women with no history of breast cancer. Findings suggest that, although there were commonalities on multiple health-related quality of life outcomes after controlling for demographic (age, education, and income) and clinical (BMI) characteristics, important differences did emerge between these 2 groups. This study adds to the current literature in that it identifies health-related quality of life outcomes that are unique to African American BCSs compared with a healthy comparison group of women, while controlling for potentially confounding variables that previous studies often failed to address.<sup>1</sup> In addition, study findings support using a framework that provides for a comprehensive assessment of quality of life.

### Disease-Specific Functioning

The greatest number of group differences was noted in the proximal health-related quality of life outcomes. African American BCSs reported more fatigue and worse hot flash bother but not more problems with attention and stress than did African American healthy controls. Fatigue is the most common symptom reported by cancer survivors<sup>26</sup> and has been identified as being a significant problem for African American BCSs compared with Asian, Latina, and white survivors.<sup>27</sup> Fatigue is also one of the strongest predictors of overall quality of life in BCSs.<sup>28</sup>

African American BCSs also reported more hot flash bother than controls did, which is consistent with previous studies. In their multiethnic sample of 621 BCSs, Giedzinska and colleagues<sup>29</sup> found that hot flashes were one of the most troublesome physical symptoms for African Americans. Even after controlling for stage of diagnosis and treatment, Yoon et al<sup>30</sup> found that African American BCSs reported more hot flashes

than did white and Hispanic BCSs. Similar racial differences in hot flash frequency and bother have been reported in healthy women with no history of breast cancer after controlling for reproductive, medical, and lifestyle variables.<sup>31</sup> Together, these findings indicate that African American women, and especially African American BCSs, have relatively more problems with hot flashes. Future research is needed to explore contributing factors and underlying mechanisms of hot flash bother in these women.

We did not find that African American BCSs had more problems with attention than the healthy comparison control group. Few studies have been done assessing subjective ratings of attention in BCSs using the attention function index.<sup>8,32</sup> In a previous study of African American and white BCSs, deficits in attention were linked to lower overall quality of life.<sup>8</sup> More research is needed to understand the impact of cancer and its treatment on cognitive problems in BCSs. Similarly, stress was not significantly different between the 2 groups after controlling for demographic and medical variables. This may have been due to the type or sensitivity of the stress instrument used in this study. However, these results are consistent with our previous comprehensive review, in which we noted few differences in stress between African American BCSs and survivors of other ethnicities.<sup>1</sup>

### General Physical, Psychological, and Role Functioning

Significant differences in the domain of general physical, psychological, and role functioning were noted between the 2 groups. African American BCSs reported significantly worse sleep than comparison women did. Poor sleep has been linked to poorer global quality of life in African American BCSs.<sup>33</sup> It is unclear what factors contribute to sleep problems in African American BCSs, although menopausal symptoms (hot flashes) have been found to adversely affect sleep quality in BCSs,<sup>34</sup> and research in noncancer samples suggests that socioeconomic factors, coping styles, and menopausal symptoms may be linked to poor sleep and poor quality of life.<sup>35,36</sup>

There were significant group differences in partner support, with BCSs reporting higher levels of social support than the comparison group did. In our previous comprehensive review, social support emerged as an important coping resource for African American BCSs.<sup>1</sup> Northouse<sup>18</sup> found that receiving social support from family and friends provided African American survivors with meaningful ways to cope and reduced the stress associated with their breast cancer. Survivors with inadequate social support, on the other hand, have reported more quality of life concerns, such as decreased family well-being and negative mood states, than did survivors with adequate support.<sup>33,37</sup> Contrary to studies comparing African American BCSs with survivors of other ethnicities, there were no group differences in spirituality. Multiple studies have noted the importance of spirituality in coping for African American BCSs<sup>1</sup> and that African American BCSs have high levels of spirituality.<sup>27</sup> In addition, previous research has shown that spirituality is positively related to hope in African American

survivors.<sup>38</sup> Thus, it has been suggested that these survivors use this heightened spirituality to cope with the sequelae of breast cancer. These study findings suggest, however, that spirituality may be heightened in all African American women and not just triggered by breast cancer diagnosis and treatment.

Interestingly, although the BCS group reported more physical symptoms (fatigue, hot flashes, and sleep disturbance), no significant differences were noted in physical functioning between the 2 groups after controlling for demographic and medical variables. In a prior review, there were few noted differences in physical functioning between African American BCSs and survivors of other ethnicities.<sup>1</sup>

## Affective States

As for affective states, no differences in depressive symptoms between the groups were noted. This is consistent with our previous literature review, in which depressive symptoms were not as prominent for African American BCSs compared with other survivors.<sup>1</sup> This is also supported by a secondary study using data from the Women's Health Initiative–Observational study, which found that African American BCSs and African American healthy control women did not significantly differ in depression scores using the CES-D.<sup>25</sup> Interestingly, African American BCSs reported more positive growth. Past research indicates that African Americans report positive growth as a result of their breast cancer. This construct includes having a new meaning and increased appreciation for life,<sup>27</sup> being positive about everyday living, avoiding dwelling on negative circumstances,<sup>39</sup> and becoming a role model to provide inspiration and encouragement to others.<sup>39</sup> Compared with white BCSs, African American BCSs have reported higher levels of positive meaning<sup>40</sup> and both increased spirituality and better mental health.<sup>41</sup>

Although there were group differences in health-related quality of life outcomes along the continuum, there were no group differences in global quality of life or overall well-being. This finding is supported by our comprehensive literature review.<sup>1</sup>

The overall findings of this study indicate that, although breast cancer may produce negative effects (ie, worse fatigue, hot flashes, and sleep disturbance), it may also produce positive changes (ie, increased support and positive growth). These positive and negative changes may balance one another and may explain the nonsignificant differences in overall well-being between the 2 groups. In addition, these findings also support the importance of assessing health-related quality of life outcomes along a continuum. The model of Brenner et al indicates that assessing more distal outcomes using generic measures facilitates comparisons across groups and permits insight into global functioning.<sup>42</sup> Disease-specific measures, on the other hand, can be used to identify and assess specific domains being affected by disease or treatment. Moreover, as was noted in this study, specific measures also tend to be more sensitive and may register changes resulting from the disease that are not registered at more global levels.<sup>43</sup>

## Limitations

Findings should be considered in terms of study limitations. First, the conceptual framework is a strength in that it allows for a comprehensive assessment of quality of life, but it needs further testing to identify and confirm appropriate measures for each domain. Second, the convenience sampling used in this study may have resulted in sampling bias, and it raises concerns to as whether the sample was representative of the entire population. And finally, BCSs who varied in time since treatment were included in this cross-sectional survey. Although our inclusion criteria are advantageous in increasing the generalizability of our findings, the criteria and study design do not provide information about how these outcomes may change over time.

## Implications for Nursing Practice and Research

These findings suggest the importance of better understanding the context of the survivorship experience for racial and ethnic subgroups and of providing comprehensive assessments of health outcomes in the practice setting. By investigating the framework of Brenner and colleagues and determining the domains in which group differences occur, this study may provide a framework and suggested measures for clinicians and researchers to use in the future when assessing health-related quality of life in African American BCSs. Study findings suggest areas in which breast cancer uniquely impacts African American BCSs women relative to healthy African American women, and thus these findings point to potential clinical implications and future research priorities.

Findings from this study clearly demonstrate the need for clinicians to assess factors considered on the proximal end (disease-specific functioning) of the quality of life continuum for African American BCSs. Based on these findings, if only global measures of quality of life (overall well-being) are used, clinicians may be limited in identifying factors that disproportionately and adversely affect African American BCSs. Specifically, oncology nurses should prioritize the assessment of fatigue and hot flashes for African American BCSs and incorporate this assessment as part of their routine clinical survivorship assessment. In addition, evidence-based nursing interventions are needed to manage fatigue, hot flashes, and sleep disturbances for African American BCSs. Based on the findings of this study, these intervention programs should also capitalize on using existing resources such as social support and experiences of positive growth to enhance overall quality of life of African American BCSs. Overall, by identifying the unique needs and resources of African American BCSs, nurses will be better able to focus resources to those most in need.

Further research is needed to focus on the concerns identified in this study. Most importantly, nurse researchers should work to understand why African American BCSs experience relatively more symptoms of fatigue, hot flashes, and sleep disturbance. One avenue would be to explore potentially common



underlying mechanisms including genetic and environmental factors that may contribute to these symptoms in African American BCSs.

## Conclusions

This study is important because it adds to the current literature that identifies health-related quality of life outcomes unique to African American BCSs versus healthy African American controls. As hypothesized, African American BCSs reported favorable global health-related quality of life at the distal end of the continuum compared with the African American healthy control group. These survivors reported relatively more concerns with proximal measures of health-related quality of life, including greater fatigue, worse hot flashes, and worse sleep quality. This work supports previous assertions that a comprehensive assessment of health-related quality of life factors is needed to fully understand the care needs of African American BCSs. Although global indicators of quality of life are important, measurement of more proximal disease-specific functioning is essential for addressing the care needs of survivors.

## ACKNOWLEDGMENT

The authors thank Phyllis Dexter, PhD, RN, for editing the article.

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