Cultural Values and Secondary Prevention of Breast Cancer in African American Women

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Background: *Improving mammography initiation and maintenance among African American women has been suggested as a strategy for reducing breast cancer mortality in this population.*

Methods: *We examined cultural values in relation to self-reported breast cancer screening among 572 low-income, urban, African American women. Cultural values examined included time orientation, family authority, employment aspirations, value of past vs modern life, and reliance on medical professionals. Also, implications for continued development of culturally tailored health interventions and opportunities for the consideration of cultural values in health communication are discussed.*

Results: *Bivariate analyses showed that more traditional values were associated with worse screening histories and lower intentions for future screening. In multivariate analyses, two interactions were observed between cultural values and age: for younger women, more traditional values were associated with lower odds of having ever received a mammogram, and for older women, more traditional values were associated with lower odds of intentions to receive a mammogram in the next 2 years.*

Conclusions: *This study adds to the evidence that cultural constructs, such as values, are associated with secondary prevention of breast cancer and supports the consideration of cultural constructs as important in increasing mammography and reducing breast cancer disparities for African American women.*

Introduction

Despite a population decline in cancer mortality, cancer death remains significantly higher among African Americans than whites,[1] and breast cancer is no exception. African American women are more likely to be diagnosed with the disease at an advanced stage, to have shorter 5-year survival rates, and to die of breast cancer more often than white women.[1,2]

Within the large body of research devoted to understanding African American breast cancer disparities, many studies have focused on screening behavior.[3,4] Specifically, underutilization of mammography among African American women has been suggested as an important contributor to the higher rate of breast cancer mortality in this population.[2] Mammography is the most common secondary prevention method used for the detection of breast cancer and has been shown to reduce cancer mortality by providing early detection of disease.[5] In general, African American women have been shown to receive mammograms less often than recommended,[6] and some studies have shown specifically that African American women are less likely than white women to receive mammograms.[4,7] Therefore, increasing mammography

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Abbreviations used in this paper: EVS = expressed values scale.

and improving screening maintenance among African American women have been suggested as tools for decreasing breast cancer mortality in this population,[8] particularly if interventions are aimed toward low-income, older African American women who have never received a mammogram.[9]

The influence of socioeconomic barriers such as income or health insurance coverage in determining screening patterns is important, but it cannot fully explain African American screening disparities.[10] Therefore, it is equally important to understand the role of psychosocial determinants of screening behavior,[2,11] including cultural values.[12,13] Values have been defined as longstanding beliefs that influence motivation and behavior.[14,15] Individuals' values are strongly influenced by the social groups to which the individuals belong; thus, social groups are expected to hold shared cultural values, notwithstanding individual variation in values within groups. Because of their relevance to behavior, values have been studied in relation to health-related actions (eg, AIDS prevention[16] and end-of-life care[17]) and can directly influence health behavior by proscriptively encouraging or discouraging specific health actions.[18] Indirectly, a cultural value might influence health behavior by shaping actions related to family, work or other important aspects of life.

Interventions that include values-congruent content may be more effective for target populations and have been studied in relation to infectious disease[19] and substance abuse.[20] However, more culturally relevant research is needed in the context of cancer prevention.[21,22] Cultural values have important implications for interventions aimed at cancer prevention and control[23-25]; with respect to cancer screening, interventions that incorporate cultural values have been shown to increase mammography among African American women.[24] Specific values that have been shown to affect breast cancer screening include positive evaluations of a doctor's opinion and of future planning. For example, Rimer et al[13] showed that women who valued their doctor's advice regarding secondary prevention were more likely to be screened, and Lukwago et al[12] showed that a future, rather than present, time orientation was related to more accurate breast cancer knowledge and participation in mammography. Both of these values (reliance on medical professionals and long-term planning) have been characterized as nontraditional African American cultural values.[26]

The present study examines African American cultural values in relation to breast cancer screening among low-income, urban, African American women. Given the previous research on breast cancer and cultural values, we expect that women who more negatively evaluate future planning and the advice of physicians will be less likely to report screening histories and screening intentions that are in line with recommended mammography guidelines, even after adjustment for sociodemographic variables relevant to cancer screening (age, education level, and regular source of medical care). We also examine in what ways other so-called traditional African American values are related to screening behaviors. Finally, we explore interactions between values, age, and education to determine whether associations between traditional cultural values and screening behaviors differ for women of different life-stages or education levels.

Methods

Survey Participants

Data used in these analyses came from a multi-year National Cancer Institute-funded study of breast cancer screening among African American women in Baltimore, Maryland. Methods and related findings have been previously published[27,28] and are briefly described here. With the original goal of evaluating the impact of a no-cost screening intervention within communities at risk for poor screening, women attending a no-cost mammography program and a matched sample of friends and neighbors not receiving screening from the program were recruited for a 90-minute, in-home audiotaped interview conducted by trained African American female interviewers. During 1997 and 1998, interviews were completed with 576 women between 45 and 93 years of age (85% response rate). Participants provided written informed consent and received $25 for participation. The study was approved by the Johns Hopkins Medical Institution's Institutional Review Board.

The original case-control design was chosen to evaluate the impact of the screening program.[27] In addition, a comparison of respondents to census-based sociodemographic characteristics of their neighborhoods supports analysis of the total group as a representative population of low- and moderate-income urban African American women for questions not specifically related to the no-cost mammography program.[28]

Measures

Cultural Values: Values were measured using a modified version of the Expressed Values Scale (EVS).[26] The EVS was developed specifically for use with low-income, urban, African American women to assess expressed cultural values on multiple dimensions. Slaughter-Defoe[26] states that African American women seek to manage and improve situations in their own and their families' lives while facing barriers of gender, race, and class discrimination. She posits that a traditional approach to managing life situations would strive to "establish order and predictability"; however, a strategy based on adaptation would achieve improvement by seeking "new and more effective social resources" through assimilation or modernization. Original instrument development and validation were conducted with women residents of Chicago public housing com-

munities. Though several measures of African American cultural values exist (eg, Belgrave et al[20]), the inclusion of multiple value dimensions within the EVS makes it a particularly good measurement tool for research.[29] Further, the EVS was chosen for use in the current study due to its validation with a population similar to women included in the present study and its focus on values relevant to secondary prevention and health.

In the EVS, vignettes that describe scenarios with contrasting pairs of behaviors, decisions, or opinions are read to the participants, and they are asked to choose the position that they feel is most similar to their own values. These forced choice options were designed to vary with respect to modernity, wherein one option represents a more "traditional" behavior, decision, or opinion than the other. From 12 possible vignettes, we chose five items from the EVS to measure the two values directly related to preventive screening (healthcare seeking behavior and future planning) and three other areas (modern life in general, family decision-making authority, and occupational risk taking). The EVS categorizes respondents as having traditional African American values if they valued (1) life as things were in the past as preferable to life today, (2) families with one person in charge as preferable to shared authority, (3) reliance on self for management of health problems as preferable to seeking medical advice, (4) "taking things day by day" as preferable to future-planning, and (5) security in one's job as preferable to "trying something new with a chance for promotion" (ie, occupational risk taking).

The participant's response to each of these five items was coded as "0" for endorsement of a nontraditional value and as "1" for endorsement of a traditional value, and this summed score (0–5) was used in analyses, with higher scores indicating more self-reported traditional values. In addition to examining the reliability of these items as a simple index, response patterns among respondents for these five items were tested for scalability as a Guttman scale.[30] Scalability analyses tested for an underlying graduated nature of the values expressed in each of these five scenarios, from only slightly to extremely traditional.

Screening Behavior: We used four sets of questionnaire items that measured short- and long-term screening behaviors. Past behavior was assessed by asking (1) whether a woman had ever received a mammogram (long-term screening history) and (2) whether she had received a mammogram in the past year (short-term screening history). Future intentions were assessed by asking (1) whether a woman ever intended to receive a mammogram (long-term screening intentions) and (2) whether she intended to receive a mammogram within the next 2 years (short-term screening intentions).

Covariates: In order to examine the impact on screening of holding more traditional values among women of similar age and socioeconomic status, we conducted multivariate analyses to examine these relationships adjusting for age and education level. In addition, we adjusted for having a regular source of medical care, which is a well-established influence on screening.[31] Although income has been shown to be relevant to cancer screening in studies of economically diverse populations (eg, Hiatt et al[32]), annual income was uniformly modest among these women and was not included in the multivariate models. Descriptive statistics and bivariate analyses for annual income, marital status, religious participation, and employment status are provided for the purposes of characterizing the sample, as well as exploring the discriminant and convergent construct validity of the EVS.[33]

Data Analysis

Descriptive statistics for and bivariate associations between cultural values, screening behavior, and other study variables are reported. Four outcomes (short- and long-term screening histories and intentions) were modeled separately using multivariate logistic regression. Variables were added to each of these four models in the following manner: cultural values (step 1), age, years of education, and source of medical care (step 2), and interactions between age and cultural values and between education and cultural values (step 3). Regression coefficients are shown for the final multivariate models. For

Table 1. — Cultural Values and Scale Statistics

Composite Scale Descriptives		
Mean (SD)	1.97 (0.96)	
		Frequency
Summed scores	0 = Minimum (endorsed all dimensions as "nontraditional")	6%
	1	25%
	2	42%
	3	22%
	4	5%
	5 = Maximum (endorsed all dimensions as "traditional")	0.2%
Scale Dimensions		
Planning	Traditional – prefer present orientation to long-term planning	85%
Occupational	Traditional – prefer job security to occupational risk taking	55%
Family	Traditional – prefer solo rather than shared authority	36%
Life	Traditional – prefer lifestyles of the past to lifestyles today	14%
Health	Traditional – prefer self/friends to medical professional for health problems	8%

models where interaction terms were nonsignificant, statistics presented are the results of the models at step 2 (before interaction terms were entered). Age and years of education were dichotomized as main effects and in the interaction terms, and a centered score for cultural values (centered at median) was used in step 1 and in the interaction terms. Stratified analyses were used to interpret the results of models with significant interactions. Analyses were done using SPSS software, version 13.0 (SPSS Inc, Chicago, Ill).

Results

Descriptive Statistics

Four respondents were not willing to choose between the two options in one or more of the cultural values vignettes, leaving 572 women for use in these analyses. In addition, 3 women were unable to answer as to whether they had ever had a mammogram. Therefore, the regression model of long-term screening history includes only the 569 women answering this question.

Data on cultural values are displayed in Table 1. The percentage of women who endorsed traditional African American values varied across the five value domains. The response patterns for these data suggest that the most commonly endorsed traditional item in this group is the concept of "taking things day by day," which was endorsed by 85% of respondents, followed by the preference for a secure job over a less certain job with promotion potential, which was chosen by 55%. Other traditional values were endorsed by less than half of the study sample.

This response pattern suggests that in this sample, the ESV items measure graduated degrees of traditionalism, supporting the use of these five items as a Guttman scale. The coefficient of reproducibility for these data is 0.91, indicating that in 91% of individual item responses, the summed score also accurately indicates a participant's response on that item. For example, if a respondent has a summed score of 3, it is highly likely that she indicated traditionalism on the three most commonly endorsed values (planning, occupation, and family authority) but did not choose traditional answers to the two most extreme items (modern life and healthcare seeking).

Table 2 displays descriptive statistics for the study sample. Women were on average 62 years of age (SD = 8.64) and most had not attained 12 years of education. Just under half had an annual income under $10,000. Regarding screening histories, although 92% of the women reported ever having had a mammogram, 73% reported that they had been screened in the past year. The data on screening intentions show a similar pattern: 91% of the women reported that they intended to receive another mammogram at some point, though

Table 2. — Associations Between Cultural Values, Demographics, and Screening Behaviors

Values	Frequency		Association With Cultural Values: Mean Value Score (SD)*	*t* Statistic	*P* Value
Age (yrs)	45 to 60	48%	1.82 (0.94)	3.65	<.01
	61 to 93	52%	2.11 (0.96)		
Years of education	3 to11	56%	2.19 (0.93)	6.35	<.01
	12 to 20	44%	1.69 (0.93)		
Annual income	< $10,000	44%	2.11 (0.94)	3.16	<.01
	≥ $10,000	56%	1.85 (0.96)		
Marital status	Married	27%	2.01 (0.96)	0.57	.57
	Not married	73%	1.95 (0.96)		
Religious service attendance	≥ Weekly	65%	1.99 (0.93)	0.87	.38
	< Weekly	35%	1.92 (1.01)		
Current work status	Working	42%	1.72 (0.94)	5.19	<.01
	Not working	58%	2.14 (0.94)		
Have a regular doctor/clinic	Yes	91%	1.96 (0.97)	0.70	.48
	No	9%	2.06 (0.88)		
Ever had a mammogram	Yes	92%	1.95 (0.95)	1.53	.13
	No	8%	2.17 (1.08)		
Screened in the last year	Yes	73%	1.93 (0.94)	1.66	.10
	No	27%	2.08 (1.02)		
Intend to re-screen: ever	Yes	91%	1.94 (0.96)	2.06	.04
	No	9%	2.23 (0.95)		
Intend to re-screen: next 2 years	Yes	69%	1.91 (0.94)	2.32	.02
	No	31%	2.11 (0.99)		

* Higher scores indicate more traditional cultural values.

only 69% intended to receive a mammogram within the next 2 years.

Bivariate Analyses

Table 2 shows the bivariate associations between cultural values and study covariates and screening behaviors. More traditional cultural values were associated with older age, fewer years of education, being currently out of the workforce, and lower reported annual income (all t tests significant at $P<.01$). In bivariate analyses, cultural values were marginally associated with screening histories; women who had not received a mammogram in the past year endorsed more traditional values ($P=.10$), as did women who had never received a mammogram ($P=13$). Endorsement of traditional values was inversely associated with screening intentions; specifically, women who endorsed more traditional values were less likely to report future screening intentions, either ever or within the next 2 years (both $P<.05$).

Multivariate Analyses

Screening Histories: Table 3 displays the models of screening histories (having received a mammogram in the last year and having ever received a mammogram). Regarding short-term mammography history, more traditional values were associated with lower odds of having received a mammogram in the past year in step 1 (odds ratio [OR] = 0.85, $P<.10$), but values were nonsignificant after adjustment for study covariates. Only lack of a regular source of medical care was associated with lower odds of having received a mammogram in the past year in the final model (OR = 0.27, $P<.01$). Further, interactions between values and age or years of education were nonsignificant. In the model of long-term screening history, fewer years of education (OR = 0.43, $P<.05$) and no regular source of medical care (OR = 0.16, $P<.01$) were associated with lower odds of reporting to have ever received a mammogram. Also, the interaction between age and cultural values was significant. Among older women, cultural values were not associated with long-term screening history. However, for younger women (age 60 years or younger), more traditional cultural values were associated with lower odds of reporting ever having received a mammogram, even after adjustment for education and source of medical care (OR = 0.50, $P<.01$).

Screening Intentions: Table 4 displays the multivariate logistic models of screening intentions (inten-

Table 3. — Multivariate Models of Screening Histories

Step			Did you have a mammogram in the past year? (n = 572)		Have you ever had a mammogram? (n = 569)	
Whole sample			**OR (95% CI)**	***P* Value**	**OR (95% CI)**	***P* Value**
1	Values		0.89 (0.72, 1.09)	.24	0.46 (0.21, 1.01)	.05
2	Age (yrs)	45–60 (Ref.)	1.00	.81	1.00	.73
		61–93	0.95 (0.65, 1.40)		1.12 (0.58, 2.18)	
	Years of education	3 to 11	0.80 (0.54, 1.19)	.27	0.43 (0.21, 0.89)	.02
		12 to 20 (Ref.)	1.00		1.00	
	Source of care	Have a regular source of care (Ref.)	1.00	<.01	1.00	<.01
		Do not have a regular source of care	0.27 (0.15, 0.49)		0.16 (0.08, 0.33)	
3	Interaction between values and years of education				1.19 (0.55, 2.57)	.66
	Interaction between values and age				2.72 (1.34, 5.50)	<.01
Stratified analysis: age 45–60 yrs (n = 273)					**DV** = Have you ever had a mammogram?	
Step					**OR (95% CI)**	***P* Value**
1	Values				0.51 (0.31, 0.83)	<.01
2	Years of education	3 to 11			1.08 (0.87, 1.33)	.49
		12 to 20 (Ref.)			1.00	
	Source of care	Have a regular source of care (Ref.)			1.00	<.01
		Do not have a regular source of care			0.18 (0.07, 0.49)	
Stratified analysis: age 61–93 yrs (n = 296)						
Step					**OR (95% CI)**	***P* Value**
1	Values				1.51 (0.91, 2.50)	.11
2	Years of education	3 to 11			1.33 (1.10, 1.61)	<.01
		12 to 20 (Ref.)			1.00	
	Source of care	Have a regular source of care (Ref.)			1.00	<.01
		Do not have a regular source of care			0.12 (0.04, 0.36)	

Ref. = Reference category in odds ratio.

tions to receive a mammogram within the next 2 years and intentions to ever receive a mammogram). Regarding short-term screening intentions, more traditional cultural values were initially associated with lower odds of screening intentions (OR = 0.80, *P*<.05). However, when adjusted for study covariates, only fewer years of education (OR = 0.64, *P*<.05) and not having a regular source of medical care (OR = 0.33, *P*<.01) were associated with lower odds of intending to receive a mammogram in the next 2 years, but there was a significant interaction between cultural values and age. Results of the stratified analyses showed that cultural values were not associated with short-term screening intentions for younger women, but for women over 61 years of age, more traditional cultural values were associated with lower odds of intending to receive a mammogram in the next 2 years (OR = 0.67, *P*<.01), and this association remained marginally significant after adjustment for education and source of medical care (OR = 0.79, *P*=.10). In the model of long-term intentions to receive a mammogram (Table 4), though more traditional cultural values were associated with lower odds of intending to ever receive a mammogram at step 1 (OR = 0.73, *P*<.05), only older age (OR = 0.42) and not having a regular source of care (OR = 0.34) were associated with lower odds of intending to ever receive a mammogram in the final model (both *P*<.01). Interactions between values and age or years of education were nonsignificant.

Discussion

The present study extends the current research on associations between breast cancer screening and cultural constructs — in this case, values. As our first research question, we explored whether we could successfully operationalize and measure the construct of traditional African American cultural values using items from the EVS and find evidence of its validity. The construct validity of the EVS was supported by the bivariate associations seen. We would anticipate that more traditional values would be retained by women whose lifetime social spheres involved limited membership in other social groups. Indeed, bivariate analyses showed more traditional values among older women of lower socioeconomic status and among those who were outside the workforce. Further, the results of our Guttman scaling analysis suggested that these so-called tradition-

Table 4. — Multivariate Models of Screening Intentions

Step			Do you intend to have a mammogram in the next 2 years?		Do you ever intend to have a mammogram?	
Whole sample (N = 572)			**OR (95% CI)**	***P* Value**	**OR (95% CI)**	***P* Value**
1	Values		1.23 (0.85, 1.78)	.28	0.73 (0.55, 0.99)	.12
2	Age (yrs)	45–60 (Ref.)	1.00	.60	0.78 (0.57, 1.07)	<.01
		61–93	0.91 (0.62, 1.32)		1.00	
	Years of education	3 to 11	0.64 (0.43, 0.95)	.03	0.40 (0.21, 0.76)	.94
		12 to 20 (Ref.)	1.00		1.03 (0.55, 1.91)	
	Source of care	Have a regular source of care (Ref.)	1.00	<.01	1.00	<.01
		Do not have a regular source of care	0.33 (0.18, 0.59)		0.34 (0.15, 0.73)	
3	Interaction between values and years of education		0.81 (0.54, 1.22)	.31		
	Interaction between values and age		0.66 (0.44, 0.97)	.04		
Stratified analysis: age 45–60 yrs (n = 273)			**DV** = Do you intend to have a mammogram in the next 2 years?			
Step			**OR (95% CI)**	***P* Value**		
1	Values		1.10 (0.82, 1.48)	.53		
2	Years of education	3 to 11	1.08 (0.96, 1.22)	.20		
		12 to 20 (Ref.)	1.00			
	Source of care	Have a regular source of care (Ref.)	1.00	<.01		
		Do not have a regular source of care	0.26 (0.12, 0.58)			
Stratified analysis: age 61–93 yrs (n = 299)						
Step			**OR (95% CI)**	***P* Value**		
1	Values		0.79 (0.59, 1.05)	.10		
2	Years of education	3 to 11	1.27 (1.14, 1.42)	<.01		
		12 to 20 (Ref.)	1.00			
	Source of care	Have a regular source of care (Ref.)	1.00	.04		
		Do not have a regular source of care	0.40 (0.16, 0.98)			

Ref. = Reference category in odds ratio.

al values are nested in intensity rather than simple additive dimensions of equal valence.

Our second research question addressed whether cultural values, as measured by the EVS, were associated with screening behaviors. In bivariate analyses, more traditional values were associated with both worse screening histories and lower screening intentions. In multivariate analyses, we observed two interactions between cultural values and age. For younger women, more traditional values were associated with lower odds of having ever received a mammogram, and for older women, more traditional values were associated with lower odds of intentions to receive a mammogram in the next 2 years. This pattern of association suggests that cultural values are of particular importance to decisions regarding the timely initiation of mammography for younger women and sustained compliance with mammography among older women. The age-specific actions to begin mammography receipt at the recommended age and to maintain use into later old age are critical preventive care decisions for women; thus, it is logical that the influence of values would be especially strong at these junctures.

Consistent with previous research,[31] having a regular source of medical care was consistently associated with higher odds of reported screening intentions and histories that were in line with mammography guidelines. Although these women had relatively few economic resources, the majority did report access to medical care, which is consistent with national data showing that older women of all ethnicities are consistent utilizers of health care,[34] age-related Medicare coverage, and residence in an urban area with many health services directed at low-income clients. Nonetheless, those without care remain an important target for screening outreach.

We did not find that traditional values operated on screening through a decision to avoid regular care relationships. In bivariate analyses, those without regular care did not hold significantly higher traditional values than those with care. When we examined whether the specific traditional value of not seeking medical advice was associated with having no regular doctor, we found that 6% of those without doctors espoused this particular view compared with 8% of those with regular care (*P*=.64). Therefore, lack of access to a primary physician is more likely a sign of extreme disadvantage for women in our sample than a choice based on values. In multivariate models, both traditional values and access to a regular care provider operate independently to influence screening, again supporting a multi-level ecological model of preventive behaviors.

These analyses extend earlier work[12,13] showing that positive evaluations of long-term planning and opinions of medical professionals are associated with more positive screening behavior. However, our analyses suggest that it is not the failure to endorse these screening-specific values per se, but rather an adherence to a core set of beliefs, including but not limited to beliefs about health, that defines a group of women within African American communities whose extremely traditional values might put them at greater risk for poor screening.

In examining the individual elements of the EVS, several findings emerge with relevance for the adoption and maintenance of preventive health behaviors such as breast cancer screening. In our data, the concept of "living one day at a time" was not an unusual value. Thus, our data would suggest that such a value is not incongruent with accepting the need for secondary prevention. In contrast, women who did not value professional advice for health concerns (endorsed by only 8% of respondents) were likely to score extremely high on all other traditional values, and these views were associated with poor screening histories and future intentions. In this way, though the EVS allows for the categorization of particular values as traditional or nontraditional, the nature of cultural values associated with mammography is of greater practical significance. That is, the association of valuing the opinions of medical professionals with more positive screening behavior informs interventions aimed at increasing mammography more so than the identification by the EVS of this value as nontraditional in the African American community. Some have suggested that African American women are not defined by a single cultural identity[25]; thus, for the purposes of studying cultural constructs in relation to health and behavior, the content of specific values may best define the targets of intervention rather than the value's categorization as traditional or nontraditional.

In their discussion of incorporating culture into health education materials for African American women, Kreuter and Haughton[24] point out that cultural constructs common across most members of a group are appropriate for incorporating into group-targeted health communication, while cultural constructs that vary within a group are appropriate targets for tailoring at the individual level. In our sample, time orientation was a relatively constant cultural value. Thus, our results would identify time orientation as a candidate for group-targeted health communication. In contrast, a more variable value such as shared family decision making (endorsed by 64% of the sample) would be better targeted at the individual level. Further research will determine whether group-targeted or individual-level tailoring of health communication is differentially effective with respect to constructs such as cultural values. However, interventions incorporating cultural constructs into their design should consider the guidelines for levels of tailoring described by Kreuter and Haughton.[24]

There are several limitations to the present study. First, screening histories were assessed via self-report and are subject to recall bias. However, during the face-to-face interviews, participants were queried about spe-

cific details of their most recent mammogram to increase the accuracy of self-reports (eg, the month they received the mammogram). Previous research has shown that self-reports of mammography in low-income, urban populations tend to be overestimates of screening behavior.[35] Thus, any recall bias affecting the reports of screening history likely resulted in an over-estimation of reported mammography, strengthening our recommendations for increased attention to values within efforts to promote secondary prevention of breast cancer in African American women.

There are, by necessity, limitations to our operationalization of cultural values. By design, Guttman scaling tests the scalability of items in a particular set of responses, but cannot be used to predict the scalability of the items in other samples. In our sample, the most extreme value was rejection of medical care. However, positive evaluation of a doctor's advice may not be representative of African American women in general but rather of African American women who agree to participate in a health-related study.

In addition, we did not report models for each individual item in the scale, which would further identify specific values influencing preventive behaviors. Other studies have examined values individually rather than as a composite scale.[36] Indeed, the lack of previous research focused on values is due in part to difficulty with operationalizing the construct.[14] For these reasons, future research should continue to refine and improve the assessment of cultural constructs such as values.

Though cultural values are only one of many variables associated with screening participation,[24] the present study adds to growing evidence that cultural constructs, such as values, are associated with secondary prevention of breast cancer. In this way, our results support the continued development of culturally tailored interventions for promoting health behavior and suggest that the consideration of cultural constructs is important toward increasing mammography and reducing breast cancer disparities for African American women. Opportunities for the consideration of cultural values in health communication exist within the production of health education materials and within the patient-provider relationship. Continued research will further specify the level at which cultural values are most effectively targeted as part of tailored health communication and which cultural values are most associated with cancer prevention and control.

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References

1. American Cancer Society (ACS). Cancer Prevention & Early Detection Facts & Figures 2006. http://www.cancer.org/downloads/STT/ CPED2006PW Secured.pdf. Accessed August 23, 2007.
2. Li CI, Malone KE, Daling JR. Differences in breast cancer stage, treatment, and survival by race and ethnicity. *Arch Intern Med.* 2003;163: 49-56.
3. Blackman DJ, Masi CM. Racial and ethnic disparities in breast cancer mortality: are we doing enough to address the root causes? *J Clin Oncol.* 2006;24:2170-2178.
4. Smith-Bindman R, Miglioretti DL, Lurie N, et al. Does utilization of screening mammography explain racial and ethnic differences in breast cancer? *Ann Intern Med.* 2006;144:541-553.
5. Berry DA, Cronin KA, Plevritis SK, et al. Effect of screening and adjuvant therapy on mortality from breast cancer. *N Engl J Med.* 2005;353: 1784-1792.
6. Mickey RM, Durski J, Worden JK, et al. Breast cancer screening and associated factors for low-income African-American women. *Prev Med.* 1995;24:467-476.
7. Burns RB, McCarthy EP, Freund KM, et al. Black women receive less mammography even with similar use of primary care. *Ann Intern Med.* 1996;125:173-182.
8. Jones BA, Patterson EA, Calvocoressi L. Mammography screening in African American women: evaluating the research. *Cancer.* 2003;97(1 suppl):258-272.
9. Mandelblatt JS, Schechter CB, Yabroff KR, et al. Benefits and costs of interventions to improve breast cancer outcomes in African American women. *J Clin Oncol.* 2004;22:2554-2566. Epub 2004 Jun 1.
10. Roetzheim RG, Pal N, Tennant C, et al. Effects of health insurance and race on early detection of cancer. *J Natl Cancer Inst.* 1999;91:1409-1415.
11. Lannin DR, Mathews HF, Mitchell J, et al. Influence of socioeconomic and cultural factors on racial differences in late-stage presentation of breast cancer. *JAMA.* 1998;279:1801-1807.
12. Lukwago SN, Kreuter MW, Holt CL, et al. Sociocultural correlates of breast cancer knowledge and screening in urban African American women. *Am J Pub Health.* 2003;93:1271-1274.
13. Rimer BK, Trock B, Engstrom PF, et al. Why do some women get regular mammograms? *Am J Prev Med.* 1991;7:69-74.
14. Smith P, Schwartz S. Values. In: Berry JW, Segall MH, Kagitçibasi C, eds. *Handbook of Cross-Cultural Psychology.* Vol 3. *Social Behavior and Applications.* 2nd ed. Boston, Md: Allyn & Bacon; 1997;77-118.
15. Hitlin S, Piliavin JA. Values: reviving a dormant concept. *Ann Rev Sociol.* 2004;30:359-393.
16. Randolph SM, Banks HD. Making a way out of no way: the promise of africentric approaches to HIV prevention. *J Black Psychol.* 1993;19:204-214.
17. Elioff C. Accepting hospice care: issues for the African-American community. *Smith Coll Stud Soc Work.* 2003;73:377-384.
18. Berger JT. Culture and ethnicity in clinical care. *Arch Intern Med.* 1998;158:2085-2090.
19. Foster PM, Phillips F, Belgrave FZ, et al. An africentric model for AIDS education, prevention, and psychological services within the African American community. *J Black Psychol.* 1993;19:123-141.
20. Belgrave FZ, Cherry VR, Cunningham D, et al. The influence of africentric values, self-esteem, and black identity on drug attitudes among African American fifth graders: a preliminary study. *J Black Psychol.* 1994; 20:143-156.
21. Clarke CA, West DW, Edwards BK, et al. Existing data on breast cancer in African-American women: what we know and what we need to know. *Cancer.* 2003;97(1 suppl):211-221.
22. Meissner HI, Vernon SW, Rimer BK, et al. The future of research that promotes cancer screening. *Cancer.* 2004;101(5 suppl):1251-1259.
23. Smedley BD, Stith AY, Nelson AR, eds. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care.* Washington, DC: National Academy Press; 2002.
24. Kreuter MW, Haughton LT. Integrating culture into health information for African American women. *Am Behav Sci.* 2006;49:794-811.
25. Kreuter MW, Lukwago SN, Bucholtz DC, et al. Achieving cultural appropriateness in health promotion programs: targeted and tailored approaches. *Health Educ Behav.* 2002;30:133-146.
26. Slaughter-Defoe DT. The expressed values scale: assessing traditionalism in lower socioeconomic status African American women. In: Jones RL, ed. *Handbook of Tests and Measurements for Black Populations.* Hampton, Va: Cobb & Henry Publishers; 1996:145-164.
27. Klassen AC, Smith ALM, Meissner HI, et al. If we gave away mammograms, who would get them? A neighborhood evaluation of a no-cost breast cancer screening program. *Prev Med.* 2002;34:13-21.

28. Klassen AC, Juon HS, Alberg AJ, et al. Opportunities for oral cancer screening among older African-American women. *Prev Med*. 2003;37:499-506.

29. Schwartz SH, Bilsky W. Toward a universal psychological structure of human values. *J Pers Soc Psychol*. 1987;53:550-562.

30. Guttman L. A basis for scaling qualitative data. *Am Soc Rev*. 1944;9:139-150.

31. Rakowski W. Breen N. Meissner H, et al. Prevalence and correlates of repeat mammography among women aged 55-79 in the Year 2000 National Health Interview Survey. *Prev Med*. 2004;39:1-10.

32. Hiatt RA, Klabunde C, Breen N, et al. Cancer screening practices from National Health Interview Surveys: past, present, and future. *J Natl Cancer Inst*. 2002;94:1837-1846.

33. Schutt RK. *Investigating the Social World: The Process and Practice of Research*. 5th ed. Thousand Oaks, Calif: Pine Forge Press; 2006.

34. Taylor AK, Larson S, Correa-de-Araujo R. Women's health care utilization and expenditures. *Women's Health Issues*. 2006;16:66-79.

35. McPhee SJ, Nguyen TT, Shema SJ, et al. Validation of recall of breast and cervical cancer screening by women in an ethnically diverse population. *Prev Med*. 2002;35:463-473.

36. Kreuter MW, Steger-May K, Bobra S, et al. Sociocultural characteristics and responses to cancer education materials among African American women. *Cancer Control*. 2003;10(5 suppl):69-80.