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Utilization of Religious Coping Strategies Among African American Women at Increased Risk for Hereditary Breast and Ovarian Cancer

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Abstract

This observational study evaluated utilization of religious coping strategies among 95 African American women who were at increased risk for having a *BRCA1/BRCA2* (*BRCA1/2*) mutation. Overall, women reported high levels of collaborative coping; however, women with fewer than 2 affected relatives ($\beta = -1.97$, $P = 0.04$) and those who had a lower perceived risk of having a *BRCA1/2* mutation ($\beta = -2.72$, $P = 0.01$) reported significantly greater collaborative coping. These results suggest that African American women may be likely to use collaborative strategies to cope with cancer-related stressors. It may be important to discuss utilization of religious coping efforts during genetic counseling with African American women.

Keywords

African American; coping; family history; genetic counseling

Recent studies have shown that about 16%–28% of African American women who have a personal and family history of cancer that is suggestive of hereditary breast and ovarian cancer carry a risk-conferring *BRCA1* or *BRCA2* (*BRCA1/2*) mutation.^{1–4} Genetic counseling and testing for *BRCA1/2* mutations is now being offered to African American women at increased risk for hereditary disease. Although genetic testing for *BRCA1/2* mutations has been conceptualized as a stressful event,⁵ women from families at risk for having this mutation are exposed to cancer-related stressors well before genetic testing is considered. For example, it is common for women from hereditary cancer families to be diagnosed with breast cancer, ovarian cancer, or both at a young age and for several women in these families to be diagnosed with these diseases. Prior studies have shown that being diagnosed with breast cancer is a stressor that activates a variety of coping efforts,^{6–8} and women with a family history of disease use a number of different strategies to cope with their increased risk of developing cancer.⁹ Although African American women at increased

risk for having a *BRCA1/2* mutation are exposed to stressors such as personal and family history of cancer, limited empirical data are available on how African American women cope with these stressors.

Coping efforts, or cognitive or behavioral strategies that one uses to manage a stressful event, one's feelings, or both about the stressor, are key psychological processes within the transactional model of stress and coping.^{10–12} Several studies have shown that religion is important to coping efforts among African Americans in the general population^{13,14} and among African American women diagnosed with breast cancer.^{15,16} For example, 87% of African American women who were newly diagnosed with breast cancer reported that prayer and faith in God were used most often to cope with their diagnosis and treatment.¹⁷ In another study, African American breast cancer patients used a greater number of religious coping strategies than White women, and African American women used these strategies consistently following surgery.¹⁸ Religious coping can range from collaborative strategies in which individuals attempt to gain control by actively working with God to solve problems to deferring strategies in which individuals rely on God to address difficult situations.^{19,20} However, the extent to which African American women at increased risk for hereditary breast and ovarian cancer use these strategies to cope with their personal and family history of cancer has not been evaluated.

The objectives of this study were (1) to describe utilization of religious coping strategies among African American women at increased risk for hereditary breast and ovarian cancer and (2) to identify sociodemographic, clinical, and psychological variables that are associated with utilization of these strategies. Because having a personal history of cancer, family history of disease, or both may be a source of stress for African American women,²¹ we were particularly interested in evaluating the association between religious coping and cancer status and family history of disease in this study. We predicted that women who had a personal history of cancer and those with a stronger family history of disease would report greater utilization of religious coping strategies. We also hypothesized that utilization of religious coping strategies would be greater among women who perceived that they were at greater risk for having a *BRCA1/2* mutation. Developing a better understanding of coping efforts among African American women at increased risk for hereditary breast and ovarian cancer is important for identifying strategies that women might use to cope with *BRCA1/2* test results.

MATERIALS AND METHODS

Study population

Participants were African American women aged 18 years and older who were at increased risk for having a *BRCA1/2* mutation. To be eligible for participation, women had to self-identify as being African American or Black and also had to have a minimum of 5%–10% prior probability of having a *BRCA1/2* mutation on the basis of their personal and family history of breast cancer, ovarian cancer, or both. The study was approved by the institutional review board at the University of Pennsylvania.

Procedures

The procedures for recruitment and study enrollment have been described in detail elsewhere²² and are summarized here. Women were referred for study participation from oncology clinics, general medical practices, and community oncology resources. Women who were interested in learning more about the study completed a referral form that collected information about their racial background, date of birth, personal and family history of cancer, and contact information (eg, address, telephone number). Referral forms were reviewed by the genetic counselor (L.K.), and women who were eligible for participation were contacted by mail for enrollment. It is important to note that some women ($n = 19$) had provided a blood sample as part of a separate epidemiological study to identify genetic risk factors for breast cancer in African American women. However, neither genetic counseling nor clinical genetic testing for *BRCA1/2* mutations were provided to these women, and participation in the epidemiological study was not associated with decisions about enrolling in the study.²² Study enrollment consisted of completing a structured baseline telephone interview. Both study enrollment and completion of the baseline telephone interview were completed by a trained research assistant at the University of Pennsylvania after obtaining verbal consent. The baseline interview took about 40 minutes to complete and assessed sociodemographics and perceived risk of having a *BRCA1/2* mutation. The response rate for the baseline telephone interview and study enrollment was 62%.²² Following study enrollment and completion of the baseline, women were invited to participate in genetic counseling; those who agreed to participate in counseling were randomized to standard genetic counseling or culturally tailored genetic counseling. The present article focuses on data collected at baseline prior to participation in genetic counseling. Specifically, this report focuses on utilization of religious coping strategies. To reduce the respondent's burden during the baseline telephone interview, religious coping strategies were evaluated using a self-administered questionnaire that was mailed to participants after the baseline was completed. Of the women who enrolled in the study ($n = 174$), 60% completed the religious coping questionnaire. Women who were missing data for sociodemographic factors were excluded from the analysis; thus, the sample for this report consisted of 95 women. There were no differences in sociodemographic characteristics, perceived risk, or family history of cancer between women who completed and did not complete the religious coping questionnaire; however, women affected with cancer were more likely than unaffected women to complete this instrument ($\chi^2 = 3.76$, $P = 0.05$).

Measures

Sociodemographics—Age, marital status, household income, education, and employment status were obtained during the baseline telephone interview.

Clinical factors—We calculated the total number of first-, second-, and third-degree relatives affected with breast cancer, ovarian cancer, or both because it is standard practice to construct a 3-generation pedigree as part of genetic counseling.²³ Women were categorized as having 2 or more relatives affected with cancer or less than 2 relatives affected with cancer. We estimated the probability of having a *BRCA1/2* mutation on the basis of the individual's personal and family history of breast cancer, ovarian cancer, or both

using prior probability models and mutation prevalence tables.^{1,24,25} Women were categorized as having a 5% or 10% or higher prior probability of having a *BRCA1/2* mutation.

Perceived risk—Perceived risk of having a *BRCA1/2* mutation was evaluated using one Likert-style item that asked women to indicate how likely it was that they had a breast and ovarian cancer susceptibility gene alteration (1 = not at all likely, 2 = somewhat likely, 3 = very likely, 4 = definitely). This item has acceptable face validity and been used in previous research on education and counseling about hereditary breast cancer and genetic testing among African American and Caucasian women.²⁶ We recoded this item into a dichotomous variable of low perceived risk (not at all likely) versus higher perceived risk (somewhat likely, very likely, definitely) based on the distribution of responses.

Religious coping—Utilization of religious coping strategies was evaluated using the short form of the Religious Coping Style survey.¹⁹ The Religious Coping Style survey is an 18-item Likert-style instrument (1 = never to 5 = always) that assesses the use of collaborative (eg, working with God to solve problems), self-directed (eg, developing solutions to problems independent of God), and deferring (eg, relying on God to solve problems) coping strategies during the past week. These scales had excellent internal consistency in this sample (Cronbach's *α*s ranged from .87 to .92). Each scale contained 6 items and scores could range from 6 to 30, with higher scores indicating greater utilization of that coping strategy.

Data analysis

First, we generated descriptive statistics to characterize the study sample in terms of sociodemographics and clinical factors. Next, we generated means and standard deviations for religious coping strategies and used *t* tests to evaluate the relationship between religious coping and sociodemographics, clinical factors, and *BRCA1/2* perceived risk. We then used multiple regression analysis to identify factors that had a significant independent association with religious coping. Variables with a bivariate association of $P < 0.10$ with religious coping were included in the regression model for each type of religious coping strategy.

RESULTS

Sample characteristics

As shown in Table 1, the sample consisted of 95 African American women. Most women were aged 50 years and younger (61%), were not married (68%), had some college education or were college graduates (65%), were employed (64%), and had an annual household income of \$35 000 or less (55%). In addition, most women had a personal history of breast cancer, ovarian cancer, or both (68%) and had 2 or more relatives affected with these forms of cancer (59%). Most women also had a 10% or more prior probability of having a *BRCA1/2* mutation (57%). The majority of women were Protestant (67%).

Descriptive information on religious coping

As shown in Table 2, the means and standard deviations for religious coping strategies indicate that women reported fairly high levels of collaborative coping and low levels of self-directed coping. The mean (SD) level of collaborative coping was 24.2 (4.8), whereas the mean (SD) level of self-directed coping was 11.5 (5.2). Because utilization of self-directed coping strategies was low relative to collaborative and deferring coping, subsequent analyses focused on identifying factors that were associated with collaborative and deferring coping.

Bivariate analysis of religious coping efforts

Table 3 shows the results of the bivariate analyses for deferring and collaborative coping. Family history of cancer and perceived risk of having a *BRCA1/2* mutation were associated significantly with utilization of collaborative coping strategies. Women who had a fewer number of relatives affected with cancer reported significantly greater utilization of collaborative coping than those with a stronger family history of disease. In addition, women who reported that it was not likely that they had a *BRCA1/2* mutation were most likely to use collaborative coping efforts relative to those with greater perceived risk.

With respect to utilization of deferring coping strategies, women with incomes of \$35 000 or less and those who were high school graduates or less were significantly more likely to use deferring coping strategies than women with higher incomes and greater education. Cancer history, marital status, and age were not associated significantly with utilization of collaborative or deferring coping strategies.

Multivariate model of religious coping

The results of the multivariate model for collaborative coping efforts are shown in Table 4. Because only income and education were associated significantly with utilization of deferring strategies in bivariate analyses, we did not generate a multivariate regression model for this variable. As shown in Table 4, only family history of cancer and perceived risk of having a *BRCA1/2* mutation had significant independent associations with utilization of collaborative coping strategies. Compared with women who had 2 or more family members affected with cancer, those with a fewer number of affected relatives reported significantly greater utilization of collaborative coping. In addition, women who had a lower perceived risk for having a *BRCA1/2* mutation reported significantly greater utilization of collaborative coping than those with higher risk perceptions. We reran the regression model controlling for personal history of cancer because it was associated with completing the religious coping questionnaire. Although the effect for family history of cancer was slightly attenuated (parameter estimate = -1.96 , $P = 0.06$), the effect for perceived risk was unchanged (parameter estimate = -2.72 , $P = 0.01$).

DISCUSSION

Previous research has shown that religion is an important coping resource among African American women in the general population and those who are diagnosed with breast cancer.^{13,18} However, to our knowledge this is the first empirical report to evaluate

utilization of religious coping strategies among African American women at high and moderate risk for having a *BRCA1/2* mutation. Overall, women were most likely to use coping strategies in which they worked together with God to solve problems and were least likely to use strategies in which they solved problems independently of God. Religion has been shown to be an important component of African American culture that translates into high rates of church attendance,²⁷ reliance on faith to cope with difficult situations,¹³ and utilization of prayer to cope with stressors, such as breast cancer diagnosis.¹⁷ Our findings suggest that African American women at increased risk for hereditary breast and ovarian cancer may be likely to use collaborative efforts to cope with cancer-related stressors that include family history of cancer and perceived risk of having a *BRCA1/2* mutation. The tendency to work with God to solve problems may translate into more frequent use of prayer to make sense of cancer-related stressors or to relieve worries about disease. However, utilization of collaborative coping efforts may vary depending on exposure to some cancer-related stressors.

Contrary to our hypotheses, we found that women who had a stronger family history of cancer did not report greater utilization of religious coping strategies than women with a fewer number of affected relatives. Rather, women who had a fewer number of relatives affected with breast cancer, ovarian cancer, or both were most likely to use collaborative coping efforts. We also found that women who had a low perceived risk of having a *BRCA1/2* mutation were most likely to report high levels of collaborative coping. Recent research has shown that African American women with high perceived risk of having a *BRCA1/2* mutation may be most interested in genetic testing for *BRCA1/2* mutations.²⁸ In another report, African American women with lower scores on a measure of God locus of control were more likely to be adherent to cancer screening recommendations.²⁹ Thus, a possible explanation for our findings is that women with low risk perceptions may be actively working with God to relieve worries about their chances of having a deleterious mutation, whereas women with higher *BRCA1/2* risk perceptions cope with their worry by seeking out information about their cancer risk. Similarly, women who have a fewer number of affected relatives may actively work with God to gain control over worries about their family history of cancer, whereas women with a stronger family history of disease seek out medical information about cancer to cope with this stressor. It is important, however, to recognize that religious coping and seeking out medical information about cancer risks may not be mutually exclusive, especially if women come to decisions about seeking out medical information as part of their efforts to put plans developed with God into action. Future studies are needed to evaluate the relationship between collaborative coping, risk perceptions, and participation in genetic counseling and testing among African American women.

In contrast with prior research,³⁰ we also found that lower income and education levels were associated with greater utilization of deferring coping strategies. Previous research has shown that lower income is positively associated with more fatalistic beliefs about cancer and lower perceptions of control over life events.^{31–33} It is possible that individuals with lower incomes reported greater utilization of deferring strategies because of a tendency to perceive less control over stressors in general, including those related to cancer. Prior studies

have shown that some religious and spiritual beliefs, such as prayer about cancer can lead to healing, are associated with greater delay in seeking treatment for breast cancer symptoms³⁴; these beliefs were more common among individuals with lower income and education levels. However, it should be noted that utilization of deferring strategies was not related to cancer-related stressors.

In considering the results of this study, some limitations should be noted. First, because only about 60% of women enrolled in the study and provided data on religious coping strategies, our results may have limited generalizability. The challenges associated with recruiting African American women to participate in cancer research (eg, clinical trials, survivorship studies) are well documented,^{35,36} and recruiting African American women to participate in cancer genetics research may be especially difficult because of concerns about the potential abuses of genetic testing.^{37,38} Nonetheless, our response rates are similar to those reported in other studies designed to understand psychosocial issues among African American women affected with cancer^{39,40} and the rates observed for enrollment in hereditary cancer research among predominantly White women.^{41,42} Moreover, women who completed the religious coping questionnaire did not differ from those who did not complete this instrument in terms of sociodemographic factors, family history of cancer, or *BRCA1/2* risk perceptions. Nevertheless, completing the religious coping measure separately from the baseline telephone interview may have resulted in an unintentional priming effect. The cross-sectional nature of the study is an additional limitation; future studies are needed to evaluate the relationship between sociodemographic, clinical and perceived risk variables, and utilization of religious coping strategies among African American women immediately after exposure to cancer-related stressors. It may also be important to evaluate coping efforts over longer periods and to include more comprehension measures of perceived risk. Although the item we used to evaluate perceived risk of having a *BRCA1/2* mutation had acceptable face validity, risk perception is a multidimensional domain that can be measured in terms of absolute and comparative estimates. This should be considered in future research. Furthermore, it will be especially important to identify religious coping strategies that are used by African American women following disclosure of positive, negative, and uncertain *BRCA1/2* genetic test results and to evaluate the impact of these strategies on psychological functioning following genetic counseling and test results disclosure in prospective studies. Because we did not evaluate religious behaviors such as frequency of prayer or church attendance, future studies are also needed to evaluate the relationship between these behaviors and utilization of religious coping strategies and to explore the relationship between general measures of coping and coping through religious strategies.

Despite these potential limitations, the present study has important implications for provision of genetic counseling and testing for inherited breast and ovarian cancer susceptibility to African American women. The levels of collaborative coping efforts reported in the present study suggest that African American women may be likely to use collaborative coping strategies before genetic counseling, possibly to make decisions about participating in risk assessment and testing,⁴³ as well as following disclosure of *BRCA1/2* test results. However, utilization of religious coping strategies may vary among African American women at increased risk for hereditary disease depending on their family history

of cancer and perceived risk of having a *BRCA1/2* mutation. Thus, it may be important for genetic counselors to ask African American women how they normally cope with stressful events and to acknowledge the value and validity of religious beliefs and practices in coping with complex medical situations. It may also be useful for genetic counselors to explore other ways in which religious beliefs may be used to cope with genetic risk information during pretest counseling and test results disclosure.

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Table 1Characteristics of African American women at increased risk for hereditary breast cancer ($n = 95$)

Variable	Level	<i>n</i> (%)
Age	50	58 (61)
	>50	37 (39)
Marital status	Not married	65 (68)
	Married	30 (32)
Education level	Some college	62 (65)
	High school	33 (35)
Employment status	Employed	61 (64)
	Not employed	34 (36)
Income level	\$35 000	52 (55)
	>\$35000	43 (45)
Religious affiliation	Protestant	64 (67)
	Catholic	10 (11)
	Other	21 (22)
Cancer history ^a	Affected	65 (68)
	Unaffected	30 (32)
Family history of cancer	Two or more relatives	56 (59)
	Fewer than 2 relatives	39 (41)
<i>BRCA1/2</i> prior probability	10% or higher	54 (57)
	5%-9%	41 (43)

^a Affected indicates personal history of breast cancer, ovarian cancer, or both; unaffected indicates no personal history of breast cancer, ovarian cancer, or both.

Table 2

Means and standard deviations for religious coping strategies among African American women at increased Risk for hereditary disease ($n = 95$)

Religious coping	Mean (SD)	Range
Collaborative	24.2 (4.8)	6-30
Deferring	19.9 (6.2)	6-30
Self-directed	11.5(5.2)	6-30

Table 3

Association between collaborative and deferring coping efforts and sociodemographic characteristics, clinical factors, and *BRCA1/2* risk perception among African American women at increased risk for hereditary disease ($n = 95$)

Variable	Level	Collaborative coping		Deferring coping	
		Mean (SD)	<i>t</i> Value	Mean (SD)	<i>t</i> Value
Age	50	24.6 (4.3)	0.93	19.8 (6.6)	0.20
	>50	23.6 (5.5)		20.0 (5.7)	
Marital status	Not married	24.5 (4.2)	0.82	20.2 (5.6)	0.83
	Married	23.5 (6.0)		19.1 (7.4)	
Education level	Some college	23.6 (5.0)	1.56	18.5 (6.0)	3.06 ^a
	High school	25.2 (4.4)		22.4 (5.8)	
Employment status	Employed	23.5 (5.2)	1.82 ^b	19.2 (6.2)	1.45
	Not employed	25.4 (3.8)		21.1 (6.1)	
Income level	\$35 000	24.9 (4.2)	1.50	21.3 (5.9)	2.61 ^a
	>\$35 000	23.4 (5.4)		18.1 (6.2)	
Cancer history ^c	Affected	24.5 (4.4)	0.82	20.5 (6.3)	1.60
	Unaffected	23.6 (5.6)		18.4 (5.9)	
Family history of cancer	Two or more relatives	23.3 (5.2)	2.16 ^d	19.2 (6.2)	1.13
	Fewer than 2 relatives	25.4 (4.0)		20.7 (6.2)	
<i>BRCA1/2</i> prior probability	10% or higher	24.1 (4.6)	0.24	20.1 (6.2)	0.44
	5%-9%	24.3 (5.1)		19.5 (6.2)	
<i>BRCA1/2</i> perceived risk	Likely to have a mutation	23.5 (4.9)	2.38 ^d	19.3 (6.3)	1.50
	Not likely to have a mutation	26.0 (4.2)		21.4 (5.7)	

^a $P < 0.01$.

^b $P < 0.10$.

^c Affected indicates personal history of breast cancer, ovarian cancer, or both; unaffected indicates no personal history of breast cancer, ovarian cancer, or both.

^d $P < 0.05$.

Table 4

Multivariate regression model of collaborative coping efforts among African American women at increased risk for hereditary disease ($n = 95$)

Variable	Level	β	P Value
Employment status	Employed	-1.87	0.06
	Not employed (Referent)		
Family history of cancer	Two or more relatives	-1.97	0.04
	Fewer than 2 relatives (Referent)		
BRCA1/2 perceived risk	Likely to have a mutation	-2.72	0.01
	Not likely to have a mutation (Referent)		