

Comparison of Factors Affecting Repeat Mammography Screening of Low-Income Mexican American Women

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Purpose/Objectives: To examine the level of cancer fatalism and other sociocognitive behavioral determinants in Mexican American women categorized as regular mammography screeners and infrequent mammography screeners.

Design: Cross-sectional, descriptive.

Setting: A southwestern American city on the U.S.-Mexico border.

Sample: 68 Mexican American women with low incomes recruited from a cancer consortium database.

Methods: Women who had been identified as regular or infrequent screeners based on screening history were contacted and invited to participate in a telephone survey. Participation consisted of completing the Powe Fatalism Inventory (PFI) and the Mammography Beliefs and Attitudes Questionnaire (MBAQ) in English or Spanish.

Main Research Variables: Total scores on the PFI and total scores on each of the MBAQ subscales.

Findings: Differences between the two groups were noted in cancer fatalism, perceived control over their participation in screening activities, and family history of cancer. No significant differences were noted in demographic characteristics.

Conclusions: Cancer fatalism, generally believed to be highly related to socioeconomic status, may be mediated by women's perceptions of control over screening behavior or choices and by family history of cancer.

Implications for Nursing: Further research is needed to explore cancer fatalism among Hispanic women, including other factors that can affect the level of cancer fatalism and perceived control over mammography screening participation. With this knowledge, culturally sensitive interventions may be developed to increase self-efficacy and facilitate perceived control.

Hispanic women have some of the lowest rates of health screening and healthcare use in America (American Cancer Society [ACS], 2007; Fernandez, Palmer, & Leong-Wu, 2005). Breast cancer is the leading cause of cancer deaths among Hispanic women in the United States (ACS; Intercultural Cancer Council [ICC], 2005), and Hispanic women have very low participation rates in initial and repeat mammography screening (Fernandez et al.). Only 38% of Hispanic women aged 40 and older have regular mammogram screenings (ACS; National Cancer Institute, 2007), which is of concern because of the later stage, greater extent of disease presentation, and higher cancer mortality rates seen in Hispanic women diagnosed with breast cancer (ACS; Fernandez et al.; ICC).

Hispanics are one of the fastest growing ethnic groups in the United States. According to the U.S. Census Bureau

Key Points . . .

- ▶ Mexican American women with low incomes exhibit low participation in initial and repeat mammography screening despite the availability of federally funded mammograms.
- ▶ Breast cancer is the leading cause of cancer deaths among Hispanic women in the United States.
- ▶ Differences were noted among Mexican American women with low incomes with respect to levels of cancer fatalism and beliefs about control over their own breast health.
- ▶ Additional research is needed to describe influences on perceived control of screening behavior in Mexican American women.

(2000), the number of Hispanics in the United States may reach 97 million by 2050. Mexican Americans constitute the single largest group of Hispanics in the United States, about 58.5% of the Hispanic population (U.S. Census Bureau). Poor participation by Hispanic women in breast cancer screening programs is adding to breast cancer health disparities among minority populations in the United States.

One of the goals of Healthy People 2010 is to decrease health disparities among minority populations in the United

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States (U.S. Department of Health and Human Services, 2000). Hispanics with low incomes are at risk for disparate care because of low educational levels, low literacy, low socioeconomic status, lack of health insurance, limited access to care, and barriers related to language and culture (Peek & Han, 2004; Ramirez, Suarez, Laufman, Barroso, & Chalela, 2000).

The current study examined the levels of cancer fatalism and other sociocognitive behavioral determinants in Mexican American women categorized as regular mammography screeners and infrequent mammography screeners. Regular screeners included participants who received regular mammography screening, according to ACS guidelines, and infrequent screeners included participants who did not receive mammography screening on a regular basis. Women who had never received a mammogram were not included in this study because the focus was on rescreening behavior.

Low-income Mexican American women in the United States exhibit low rescreening rates despite federal programs that finance the costs of mammograms (Blackman & Masi, 2006; Centers for Disease Control and Prevention, 2003). Mexican American women lag behind other Hispanic subgroups in breast cancer screening rates (ACS, 2007; Farmer, Reddick, D'Agostino, & Jackson, 2007; Russell, Perkins, Zollinger, & Champion, 2006). The reasons for poor participation are unclear, but the literature has shown that socioeconomic factors strongly influence the stage of disease presentation (ACS; ICC, 2005; Wells, Bush, & Marshall, 2002), and several studies have consistently concluded that women who are better educated and more affluent are more likely to receive a regular mammogram (Peek & Han, 2004; Rakowski et al., 2004).

Studies also have shown that cultural factors, such as beliefs, attitudes, and knowledge about cancer, vary dramatically by race (Farmer et al., 2007; Russell et al., 2006). The importance of cultural factors in screening behavior has been increasingly recognized, and studies have found that cultural barriers and fatalistic attitudes held by many Hispanics greatly contribute to low screening participation (Dettenborn, DuHamel, Butts, Thompson, & Jandorf, 2005; Powe, 1995; Sabogal, Merrill, & Packel, 2001). Cultural and behavioral determinants that theoretically influence participation in breast cancer screening include the influence of fatalistic attitudes and sociocognitive behavioral factors relating to a person's intention to screen (Dettenborn et al.; Powe, 1995; Sabogal et al.).

Researchers have studied the influence of cancer fatalism on cancer screening, particularly among low-income minority women. Fatalism is defined as the belief that a person's behavior does not exert control over events that happen and that events occur as a result of luck, fate, or powers beyond the person's control (Buriel & Rivera, 1980; Chiappone & Kroes, 1979; Comas-Diaz, 1989; Straughan & Seow, 1998). Cancer fatalism is the belief that death is inevitable when cancer is present (Powe, 1995), and the belief has been identified as a barrier to participation in cancer screening, detection, and treatment. A review of cancer fatalism by Powe and Finnie (2003) found that cancer fatalism develops over time and is most frequently reported among medically underserved populations and individuals with limited knowledge of cancer. Studies have found that fatalistic attitudes held by many Hispanic women, particularly women in low-

income situations, have a negative effect on mammography screening participation (Dettenborn et al., 2005; Fernandez et al., 2005).

Research studies involving members of other ethnic groups also support the influence of cultural and psychosocial variables on cancer-screening behavior in minority ethnic group members (Kemp, 2005). Spurlock and Cullins (2006) studied 71 African American women with low incomes using the Powe Fatalism Inventory (PFI) adapted version and reported that compliance with screening guidelines, including clinical breast examination (CBE) and mammography, was significantly related to cancer fatalism scores and that the degree of fatalism significantly correlated with age, income, and education.

Mayo, Ureda, and Parker (2001) examined the relationship between demographic factors and other correlates of fatalism in women living in rural settings and assessed the affect of fatalistic beliefs on their participation in breast cancer screening. Results found that age, race, and education may be important predictors of fatalism and that fatalism may be a barrier to facilitating an understanding of screening behavior in older women that has not been previously measured.

Farmer et al. (2007) conducted a cross-sectional survey of low-income African American women aged 50 and older ($n = 198$) in North Carolina regarding their breast cancer screening beliefs and practices. Participants had at least one mammogram and one CBE in their lifetimes. Study results included support for the influence of components of the Health Belief Model's benefits and barriers on mammography screening. Participants with a current mammogram (a mammogram within the previous year) reported significantly higher levels of perceived benefits and fewer perceived barriers. Cancer fatalism did not directly correlate with mammography screening in the previous year, but it was significantly associated with perceived barriers to mammography screening.

Theoretical Framework

The Theory of Planned Behavior (TPB) (Ajzen, 1985) was selected as the theoretical framework for the current study. According to the TPB, human action is guided by three types of considerations: behavioral, normative, and control beliefs. Behavioral beliefs include attitudes about the likely outcomes of the behavior and the evaluations of the outcomes, normative beliefs include the normative expectations of others and motivation to comply with the expectations, and control beliefs include the presence of factors that may facilitate or impede performance of the behavior and the perceived power of the factors (Ajzen). This framework incorporates constructs that can be used to explain mammography screening behavior. For example, the construct of behavioral beliefs can be used to explain women's attitudes toward obtaining a mammogram, which could be influenced by women's perceptions of the importance and personal relevance of obtaining a mammogram and the perceived risk of getting breast cancer. The construct of subjective norm can be used to explain the influence of women's families or personal physicians in making the decision to seek mammography screening. The construct of behavioral control can be used to explain the influence of women's perceptions of their power or control over breast health and in obtaining a

mammogram, which could be influenced by religion or cancer fatalism (see Figure 1). This framework has been useful in other studies in providing a basis for the explanation of variables that predict patterns of attendance in mammogram screening programs.

Gullatte (2006) reviewed the literature involving delays, beliefs, and barriers to breast cancer screening among African American women. Although only 8% of the studies reviewed ($n = 24$) used the TPB as a framework for explaining relationships among variables, Gullatte suggested that this framework provides the most promising model for study of predictors of screening behavior in minority women because it incorporates spirituality and religiosity as motivational- and control-related factors. The current study used the TPB to examine whether variables related to behavioral, normative, or control beliefs specifically affected the mammography screening behavior of low-income Mexican American women.

Methods

Sample

Participants were identified for recruitment into this study by a retrospective review of an existing database of women at the El Paso Cancer and Chronic Disease Consortium (EPCCDC). Inclusion criteria included women in the EPCCDC database who self-identified as being of Mexican American descent, were aged 50–64 years, had never been diagnosed with breast cancer, and had received at least one mammogram in the previous five years. Only women who

were aged 50–64 years were selected because this group qualified for free mammograms through the EPCCDC. Also, all participants met qualifying requirements for low income according to the U.S. Department of Health and Human Services' (2002) annual federal poverty guidelines. Women were assigned to the regular screener group if EPCCDC database records showed that they had obtained at least four mammograms in the previous five years. Women were assigned to the infrequent screener group if records in the EPCCDC database showed that they had obtained one mammogram and never sought a second mammogram in the subsequent four years of the designated five-year period.

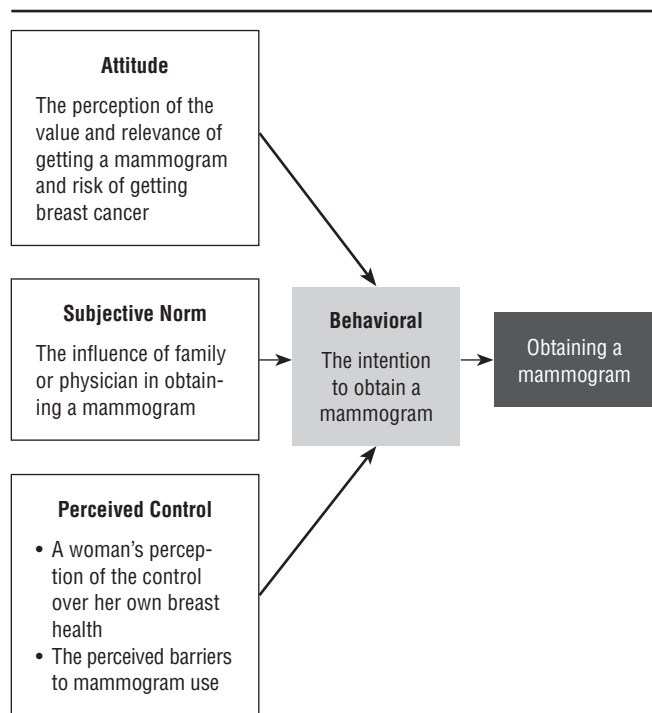
Instruments

The **PFI**, the only instrument that exclusively measures cancer fatalism, was selected for this study. The PFI has an established record of validity and reliability in previous studies with minority and nonminority populations. Reliability estimates for the PFI have ranged from 0.84–0.89 in previous studies measuring the construct of cancer fatalism (Powe, 1995, 1997, 2001; Powe & Weinrich, 1999). The PFI also is available in a Spanish-language version (SPFI) (Lopez-McKee, McNeill, Eriksen, & Ortiz, 2007) that has been validated among 175 Mexican American participants and was found to demonstrate a reliability estimate of 0.81 for the PFI and 0.82 for the SPFI. Using a validated Spanish-language instrument was necessary for this study because the majority of women recruited either did not speak English well or did not speak English at all. The PFI and SPFI are 15-item questionnaires with “yes” and “no” response choices. Yes responses are given a score of one; no responses are given a score of zero. An overall score greater than seven indicates a high level of cancer fatalism in an individual.

When Lopez-McKee (2005) validated the PFI and SPFI among 175 Mexican American participants, four subscales were identified in the PFI and SPFI: predestination, pessimism, imminent death, and fear. The findings differed from results obtained by Powe (1995) in a validation study where factor analysis revealed that all items on the PFI loaded on one factor.

The **Mammography Beliefs and Attitudes Questionnaire (MBAQ)** measures variables from the TPB as applied to mammography screening (including behavioral, normative, and control beliefs). The MBAQ includes five subscales: attitudes about mammography screening (subscale A), intentions to seek a mammogram (subscale B), perceived control over getting screened for breast cancer (subscale C), perceived risk of getting breast cancer (subscale D), and the influence of family or physician recommendations in seeking mammography screening (subscale E). The MBAQ also is available in English and Spanish versions and has demonstrated a reliability estimate of 0.80 for the English version and 0.83 for the Spanish version. The MBAQ is a 25-item questionnaire with a score of zero given if the response is “don’t know,” a score of one given for “strong disagreement,” a score of two given for “moderate agreement,” and a score of three given for “strong agreement.” Higher total scores indicate stronger agreement with the concept measured by the subscale; lower scores indicate stronger disagreement.

An additional questionnaire was used to determine participants' age, marital status, years of education, religious preference,



Note. Significant differences were found between the regular screener group and the infrequent screener group with respect to attitudes toward mammography screening and perceived control over obtaining mammography screening.

Figure 1. Theory of Planned Behavior Applied to Mammography Screening

preferred language when speaking and writing, years living in the United States, and family history of cancer.

Study Procedures

This study used a cross-sectional, descriptive design. Permission to conduct this study was granted by the institutional review board at the University of Texas at El Paso and the directors at the EPCCDC. To protect the privacy of the women, the EPCCDC required that the study be conducted at the EPCCDC office, using its computer system, and that one of its staff members be trained as the research assistant for the study. The EPCCDC employee who was trained as the research assistant in this study de-identified all information obtained during the study prior to delivering data to the principal investigator.

The research assistant had a bachelor's degree in health promotion and was bilingual (English and Spanish). The principal investigator trained the research assistant to read an English and Spanish version of a script aimed at recruiting participants into the study and in the method of reading the questions on the three study questionnaires (PFI, MBAQ, and the demographic questionnaire). The research assistant was instructed to not offer any additional information to participants when they were answering the questionnaires.

The research assistant called eligible women on the telephone and inquired whether they would be interested in participating in the study. Each potential participant was informed that participation would take about 30 minutes. Of 180 women asked to participate in the study, 68 agreed (36% response rate). Reasons given for not participating included not having time to participate in the study or feeling uncomfortable participating. Thirty-four women were placed in the regular screener group and 34 in the infrequent screener group. Participants were asked if they could participate during the initial telephone call or if a more convenient time could be set up. To decrease barriers to participation, the research assistant emphasized that there were no right or wrong answers and that information obtained from the study might benefit breast cancer research among Mexican American women. Participants also were told that they would receive a \$20 gift card.

Informed consent was obtained from participants by the research assistant via the telephone. Participants were assured of confidentiality and anonymity. The questions were read verbatim from the three questionnaires. No additional information was offered to participants, and the participants' responses were not questioned.

Statistical Analysis

Descriptive statistics were computed for the study variables and to describe the sample. Cross tabulations were obtained for the demographic variables by screener group (regular and infrequent), and comparisons of distributions across the two groups were made through a chi-square test. The total fatalism score was computed for each participant, as well as the total scores on each section of the MBAQ. Summary statistics for the total scores were computed for the two groups.

Analysis of covariance was employed to test for significant differences in the means for total PFI score and the different subscale scores for the MBAQ with history of cancer, years in the United States, and years of education as factors and

covariates. Religion and marital status were not included in the analysis because of very small frequencies of participants in certain cells. The 0.05 level of significance was used in all tests.

Results

Sample and Setting

The setting for this study was El Paso, TX, located on the U.S.-Mexico border. The city was used because the population is 80% Mexican American, 17% Anglo American, and 3% other. Power analysis determined that 68 participants were needed, 34 for each group (90% power, effect size of 0.8). All women recruited into the study self-identified as being of Mexican American descent. The mean age for participants was 58.4 years (SD = 4.6). Most participants were married ($n = 42$, 62%). Mean years living in the United States was 27.7 (SD = 13.6). The majority of women reported being Catholic ($n = 54$, 79%). Education level was a mean of 7.1 years (SD = 3.3). The majority of the women had a family history of cancer ($n = 35$, 51%). No significant differences appeared in the demographic characteristics between the two groups (see Table 1).

Relationship of Fatalism to Theory of Planned Behavior

Mean fatalism scores and the mean total score on each part of the MBAQ were computed for each screener group and are reported in Table 2. Analysis of covariance showed significant differences between the mean total fatalism score of the infrequent screener group (8.03) compared to the regular screener group (5.85) ($p = 0.02$). A significant difference was detected in the mean scores of MBAQ subscale C for the two groups ($p = 0.01$). Items on this subscale deal with behavioral control items and include seven items such as, "My getting a mammogram makes me feel in control of monitoring my own health."

Analysis of covariance also revealed a significant interaction between participants and their family history of cancer

Table 1. Demographic Characteristics by Group

Characteristic	Regular (N = 34)		Infrequent (N = 34)	
	\bar{X}	SD	\bar{X}	SD
Age (years)	57.6	5	59.1	5
Years living in the United States	26.6	16	28.9	10
Education level (years completed)	7.5	3	6.7	3
Characteristic	n	%	n	%
Marital status				
Married	24	71	18	53
Single	6	18	7	21
Divorced	3	9	6	17
Widowed	1	2	3	9
Religion				
Catholic	29	85	25	73
Other	5	15	9	27
Family member with history of cancer	21	62	14	42

Table 2. Total Powe Fatalism Inventory and Mammography Beliefs and Attitudes Questionnaire Subscale Scores

Score	Regular (N = 34)		Infrequent (N = 34)		p
	\bar{X}	SD	\bar{X}	SD	
Powe Fatalism Inventory Score	5.85	3.00	8.03	4.00	0.02
Mammography Beliefs and Attitudes Questionnaire					
Subscale A	9.75	0.51	9.82	0.64	0.60
Subscale B	1.97	0.17	1.94	0.24	0.56
Subscale C	3.55	0.68	4.03	0.82	0.01
Subscale D	2.68	1.36	2.50	1.16	0.57
Subscale E	21.52	4.79	20.94	4.65	0.62

($p = 0.009$) for the subscale question, “In my opinion, my chance of developing breast cancer sometime in my life is. . . .” The mean was 0.8 for regular screener participants who had a family history of cancer and 1.1 for participants without a family history of cancer. This trend was reversed for the infrequent screeners, with a mean of 1.4 for participants who had a family history of cancer and 0.3 for participants without a family history of cancer.

Discussion

The results of this study are helpful in determining factors that affect low-income Mexican Americans’ decisions about seeking regular mammography screening. Cancer fatalism levels are significantly higher in women who have infrequent patterns of mammography screening compared to women who have regular patterns of mammography screening, significant because most of the literature on cancer fatalism indicates that low socioeconomic status is associated with high levels of cancer fatalism (Russell et al., 2006; Spurlock & Cullins, 2006). This study revealed significant variations in the level of cancer fatalism by group despite the fact that all women in the sample were classified as low income.

Results of this study revealed significant differences in the opinion of infrequent screener participants compared to regular screener participants with respect to control beliefs (i.e., the beliefs concerning the presence of factors that may facilitate or impede their obtaining a mammogram and perceptions of how much control or power women feel over breast health). Infrequent screener participants felt less control over their health, consistent with Russell et al.’s (2006) study of African American women in regard to mammography and Gorin’s (2005) study of Hispanic patients and colorectal cancer screening. The findings reflect the influence of cancer fatalism on perceived control. A relationship exists between MBAQ subscale C, which addresses control items over mammography screening, and the PFI. Additional studies of perceived control as a variable in screening decisions for Hispanic women should be conducted.

This study also found little difference between regular and infrequent screener participants in perceived behavioral beliefs (i.e., beliefs about the likely outcomes of participation in mammography screening) and the evaluations of the outcomes of not participating in mammography screening. Gullatte’s (2006) conclusions, drawn from a review of studies related

to beliefs and barriers to cancer screening delays in African American women, support this finding.

No significant differences were found with respect to normative beliefs. Participants considered the opinions of family members or their physicians as being the factor that convinced them to seek a mammogram. The majority of participants said that they were very much influenced by their families in getting a mammogram, supporting other studies that have shown that cultural norms of the Mexican American culture are family-oriented and health decisions often are made by the family unit (Kemp, 2005; Maly, 2006).

This study also revealed that regular screener participants were more likely to have had a family history of cancer than infrequent screeners, although the difference was not significant. Response analysis suggests that all participants were influenced by family history of cancer.

Two studies have investigated the influence of family history on mammography in minority women. Wu and Bancroft (2006) conducted focus groups with 11 Filipino American women and found that participants perceived a personal or family history of cancer to be a motivator in obtaining mammogram, CBE, and breast self-examination screenings. Ahmed, Fort, Elzey, and Bailey (2004) reported on a qualitative study of underserved women with low incomes ($n = 25$) who were adherent to screening recommendations despite their experience with barriers to regular mammography screening. One of the themes recognized in the analysis of the focus group discussion was participants’ awareness of their family history and the challenges faced by family members with cancer that caused the women to take action. Perceived fatalism was not addressed specifically in either of the studies. Additional research should be conducted to explore the possible mediating effects of a family history of cancer on the perception of fatalism, perceived control, and the influence of these factors on mammography screening in Hispanic women.

Limitations

The small sample size of this study could affect the generalizability of the findings to the Mexican American population. In addition, the use of only Mexican American women in the sample could affect the generalizability of findings to other Hispanic subgroups. Other factors that could influence the level of cancer fatalism, such as knowledge about breast cancer, religious affiliation, or marital status, were not examined.

Conclusions

The findings are useful in describing some of the factors which prevent participation in mammography screening by Mexican American women with low incomes despite federally subsidized programs that finance the costs of mammograms. Significant differences were detected with respect to cancer fatalism in women identified as infrequent screeners compared to women identified as regular screeners, although both groups were Mexican American women with low incomes. No significant differences were found in potentially confounding variables, such as age, education, religion, marital status, or years living in the United States, suggesting that cancer fatalism in this sample was not related to the typical socioeconomic factors found in other studies. Although literature supports the idea that cancer fatalism is most commonly associated with women who have low incomes and low levels

of education, this study revealed that differences in cancer fatalism exist even within that grouping.

This study also revealed a possible connection between cancer fatalism and the level of perceived behavioral control as defined by the TPB framework. Infrequent screener participants reported less perceived control over mammography screening attendance compared to regular screener participants. Lack of perceived control could contribute to women's levels of cancer fatalism.

Implications for Nursing

Studies are needed to explore cancer fatalism among Hispanic women, particularly regarding family history and the effect of perceived control on women's screening behaviors. Prospective studies that include other Hispanic subgroups using a larger sample size should be conducted. Studies also are needed to examine the influence of other factors (i.e., knowledge about breast cancer and the influence of religion or marital status) on the level of cancer fatalism in Hispanic women with low income.

The findings suggest that clinical oncology nurses, educators, and program planners should design health promotion interventions that will help Mexican American women

increase their sense of self-efficacy with respect to mammography screening. This may, in turn, have an effect on perceived cancer fatalism. Interventions could be structured around methodologies that will increase women's sense of control over health, such as the use of role models that share their experiences with other women in small groups or via written or video media (Ahmed et al., 2004). Using the TPB, and in consideration of the role of spiritual and religious factors in the lives of Mexican American women, collaborations with church-related resources to provide programs, screening events, and education interventions related to breast cancer may be productive. Such events would have the added value of being family- and community-oriented and provide additional support for health-related decision making. Interventions aimed at improving women's self-efficacy and perceived behavioral control may increase mammography rescreening among low-income Mexican American women.

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