

Psychological Distress, Social Withdrawal, and Coping Following Receipt of an Abnormal Mammogram Among Different Ethnicities: A Mediation Model

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Breast cancer continues to be a leading cause of death for non-Latina Caucasian (NLC) and Latina women in the United States (American Cancer Society, 2012, 2014a). Although the incidence of breast cancer among Latinas is lower relative to NLC women, Latinas are more likely to be diagnosed at later stages (Lantz et al., 2006; Siegel, Naishadham, & Jemal, 2012) and die of diagnosed breast cancer (Jemal et al., 2004; Ooi, Martinez, & Li, 2011). Latina patients with breast cancer and survivors appear to have lower quality of life, including poorer emotional and social functioning, compared to NLC counterparts (Bickell et al., 2006; Fedewa, Ward, Stewart, & Edge, 2010). A large body of literature exists that has characterized and addressed modifiable factors associated with early detection of breast cancer, including promotion of mammography screening among Latinas (Guerra, Krumholz, & Shea, 2005; Molina, Thompson, Espinoza, & Ceballos, 2013; Purc-Stephenson & Gorey, 2008; Santiago-Rivera, Arrendondo, & Gallardo-Cooper, 2002). However, little research exists to date of quantified ethnic differences in mental health comorbidities after abnormal screening results. Psychological distress is particularly important among women who receive an abnormal mammogram result, given short- and long-term consequences related to early detection and the persistence of elevated distress as long as six months following receipt of results (Bond et al., 2013; Brewer, Salz, & Lillie, 2007; Hafslund, Espehaug, & Nortvedt, 2012; Keyzer-Dekker et al., 2012; Salz, Richman, & Brewer, 2010).

A large body of research has characterized elevated psychological distress and anxiety among women who receive an abnormal screening result, which requires further evaluation. Most research has focused on predominantly NLC women or has not addressed racial or ethnic differences (Andrés-Hyman, Ortiz, Añez, Paris, & Davidson, 2006; Molina et al., 2013). Although the authors of the current article found no study that compared distress among Latinas and NLC women, one qualitative study with a largely Latina sample noted that psycho-

Purpose/Objectives: To explore ethnic differences in psychological distress and social withdrawal after receiving an abnormal mammogram result and to assess if coping strategies mediate ethnic differences.

Design: Descriptive correlational.

Setting: Two urban mobile mammography units and a rural community hospital in the state of Washington.

Sample: 41 Latina and 41 non-Latina Caucasian (NLC) women who had received an abnormal mammogram result.

Methods: Women completed standard sociodemographic questions, Impact of Event Scale-Revised, the social dimension of the Psychological Consequences Questionnaire, and the Brief COPE.

Main Research Variables: Ethnicity, psychological distress, social withdrawal, and coping.

Findings: Latinas experienced greater psychological distress and social withdrawal compared to NLC counterparts. Denial as a coping strategy mediated ethnic differences in psychological distress. Religious coping mediated ethnic differences in social withdrawal.

Conclusions: Larger population-based studies are necessary to understand how ethnic differences in coping strategies can influence psychological outcomes. This is an important finding that warrants additional study among women who are and are not diagnosed with breast cancer following an abnormal mammogram.

Implications for Nursing: Nurses may be able to work with Latina patients to diminish denial coping and consequent distress. Nurses may be particularly effective, given cultural values concerning strong interpersonal relationships and respect for authority figures.

Key Words: breast cancer; coping; cultural competence; Hispanic; prevention; detection; quality of life

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logical distress interfered with motivation to schedule a follow-up appointment (Allen, Shelton, Harden, & Goldman, 2008). A quantitative study found that fear of a cancer diagnosis was more strongly associated with delays in follow-up care adherence among Latina

breast and cervical cancer survivors (Ashing-Giwa et al., 2010). In addition to psychological distress, receiving abnormal mammography results may also affect social functioning. Some studies have indicated that receipt of an abnormal mammogram may result in negative social consequences, including withdrawal from one's family and friends (Austin, Ahmad, McNally, & Stewart, 2002; Cockburn, De Luise, Hurley, & Clover, 1992; Lowe, Balanda, Del Mar, & Hawes, 1999). Conversely, social support has been seen as protective with regard to reduced psychological distress (Andrés-Hyman et al., 2006; Molina et al., 2013; Montgomery, 2010). Social withdrawal may be particularly problematic for Latinas, given the cultural importance placed on strong interpersonal relationships (Marin & Marin, 1991). Little research has explored social withdrawal or other aspects of psychological functioning after an abnormal mammogram among Latinas.

Coping has been linked to psychological distress and well-being across the cancer continuum (Boinon, Charles, Dauchy, & Sultan, 2011; Bond et al., 2013; Kreuter & McClure, 2004), including in response to an abnormal mammogram result (Andrés-Hyman et al., 2006; Austin et al., 2002; Molina et al., 2013; Montgomery, 2010; Moy, Park, Feibelman, Chiang, & Weissman, 2006). Ethnic differences in coping are largely unknown in the context of the abnormal mammography experience, but hypotheses can be drawn from existing literature on Latinas' coping strategies in other phases of the cancer continuum. Ethnic differences in coping along the cancer continuum have largely focused on coping during treatment and survivorship. Latinas are more likely to employ religious coping (e.g., prayer) (Ashing-Giwa et al., 2004; Culver, Arena, Antoni, & Carver, 2002; Culver, Arena, Wimberly, Antoni, & Carver, 2004; Lopez-Class, Gomez-Duarte, Graves, & Ashing-Giwa, 2012) and avoidant coping strategies (e.g., denial, self-distraction) (Culver et al., 2002; Umezawa et al., 2012) than their NLC counterparts. With regard to early detection, a few studies have assessed coping in relation to ethnic screening. For example, avoidant coping has been suggested to vary in its effect on mammography screening among different groups of Latinas (Kudadjie-Gyamfi & Magai, 2008).

Ethnic differences in coping may influence the amount and types of negative psychosocial consequences women face (Bond et al., 2013). Religious or spiritual (Alderete, Juarbe, Kaplan, Pasick, & Pérez-Stable, 2006) and avoidant coping strategies (Chen et al., 1996; Pakenham, Clutton, & Buckley, 1999; Heckman et al., 2004; Montgomery, 2010) have been specifically linked to psychological distress following receipt of an abnormal mammogram. In a sample including Latina and NLC women, regular attendance at religious services was related to lower levels of depressive symp-

toms (Alderete et al., 2006), but ethnic comparisons were not conducted. Coping may also be associated with decisions to withdraw from family and friends after receipt of abnormal screening results. One study found that NLC women undergoing diagnostic procedures relied on religious coping and simultaneously isolated themselves from family (Logan, Hackbusch-Pinto, & De Grasse, 2006).

Exploration of ethnic differences in coping may be integral to promoting positive psychological well-being. This study draws on a conceptual framework developed by Folkman and Lazarus (1988), in which coping is conceptualized as a mediator between stressful situations and emotional reactions to stressors. In the current article, the authors posit that ethnic differences may exist in coping after receipt of an abnormal mammogram result, which is potentially because of multiple contextual factors including culture and stressors associated with socioeconomic position. Ethnic differences in coping may result in ethnic differences in emotional reactions (e.g., distress and social withdrawal) to cancer-specific stressors (e.g., an abnormal mammogram result). Previous research on patients with cancer and survivors support this conceptual framework. Ethnic differences exist in emotional responses to stressful circumstances, such as cancer treatment and survivorship (Ashing-Giwa et al., 2004; Culver et al., 2002, 2004). Other work has suggested differences in psychological well-being and quality of life, in which Latina patients with cancer and survivors exhibited lower quality of life relative to NLC counterparts (Ashing-Giwa, Padilla, Bohórquez, Tejero, & Garcia, 2006; Janz et al., 2009). Documented ethnic differences in coping may result in lower quality of life among patients and survivors. However, little research to date has examined this relationship. In addition, these relationships may begin before the cancer diagnosis, such as after receipt of an abnormal mammogram, and may exist among women who receive an abnormal mammogram result but are not diagnosed with breast cancer. Understanding the role of coping strategies in associations between ethnicity, psychological distress, and social withdrawal is warranted. If Latinas and NLC women cope differently, these differences in coping strategies may be related to ethnic variation found in psychological distress and social withdrawal and should be targeted in future interventions and in healthcare practice to improve the psychological health of ethnically diverse screening populations.

This pilot study has two primary objectives: (a) to explore ethnic differences in psychological distress, social withdrawal, and coping strategies after receipt of an abnormal mammogram result among two convenience-based samples of Latinas and NLC women and (b) to assess the mediating role of coping strategies in relation to ethnicity, psychological distress, and social

withdrawal. The current study seeks to address this gap in the literature and provide pilot data for the development of psychological interventions and evidence-based nursing practices to improve the psychological well-being of Latinas who receive an abnormal mammogram result.

Methods

Procedures

The current research is part of an exploratory mixed-methods project addressing stress and coping following receipt of an abnormal mammogram among 41 Latinas and 41 NLC women living in the state of Washington. The multiphased project was reviewed and approved by the institutional review board at the Fred Hutchinson Cancer Research Center in Seattle, Washington. The authors' study sites included two mobile mammography services within urban areas of western Washington (e.g., Seattle) and a community hospital with a radiology department within a rural area of eastern Washington (i.e., Yakima). The majority of Latina ($n = 34$ of 41) and NLC ($n = 36$ of 41) participants were recruited from the urban mobile mammography sites. The authors employed a two-step process to recruit a convenience sample of Latinas and NLC women who had received an abnormal mammogram result. For the first step, clinic staff approached potential participants during initial mammography appointments and described the study. Women who indicated interest during the initial appointment and subsequently received an abnormal mammogram result were contacted via telephone by researchers. For the second step, the authors contacted all women requiring follow-up care of some sort (e.g., diagnostic mammogram, ultrasound) with mailed materials, including a generic letter of approach from the clinic sites and a study brochure describing the project. Women were asked to initiate contact with research staff, if interested. About half of the participants ($n = 48$) indicated interest during the first step of the recruitment process and received mailed materials as part of the second step. The other 34 participants did not indicate interest during the initial appointment but indicated subsequent interest when recruited at the second step with mailed study materials. Strategies were used in tandem to generate a sufficient sample to test the objectives described above. Preliminary analyses revealed no significant differences in study variables of interest (i.e., ethnicity, coping, distress, and social withdrawal) by clinic or recruitment strategy ($p > 0.35$).

Interested women were screened according to eligibility criteria including self-identification as Hispanic, Latina, or Chicana or as European American, White, or Caucasian; being aged between 40–74 years; receipt of an abnormal mammogram result within the past

month; and no prior personal history of breast cancer. Subsequent interviews were conducted for 25–35 minutes by a bicultural, bilingual interviewer and included informed consent and questionnaire administration. All study materials were available in English and Spanish. Interviews were conducted according to participants' language preferences. Thirty-three NLC women and 33 Latinas preferred telephone interviews, four NLC women and one Latina mailed completed interview schedules, and one NLC woman and five Latinas had inperson interviews. Inperson interviews were conducted in research staff's offices or in public venues (e.g., libraries). Preliminary analyses revealed no significant differences in study variables of interest by type of interview ($p = 0.31$).

Measures

Sociodemographic and mammography-related variables: Standard census demographic questions were used to collect data on ethnicity, age, education, personal annual income, insurance status, nationality, and language preference. Mammography and other breast healthcare use history was ascertained from self-report and electronic medical records for women who completed Health Insurance Portability and Accountability Act forms.

Psychological distress: To address psychological distress, the authors administered the **Impact of Event Scale-Revised**, which has been validated in English and Spanish (Horowitz, Wilner, & Alvarez, 1979; Requena & Gil Moncayo, 2007; Weiss, 2007). The avoidance and intrusion subscales have been suggested to be relevant for different traumatic events of varying severity, in contrast to the hyperarousal subscale (Sundin & Horowitz, 2002). To minimize patient burden, the authors only administered the avoidance and intrusion subscales. Sample items of the 15 items associated with these subscales are, respectively, "I am aware that I have a lot of feelings about my results, but I haven't dealt with them" and, "I have had waves of strong feelings about my results." Response categories included 0 indicating not at all, 1 indicating a little bit, 2 indicating moderately, 3 indicating quite a bit, and 4 indicating extremely. To create summary scores, the authors calculated summary scores for subscales, which were means of all items, and then added the scores together to create an overall score. The Cronbach alpha for this instrument was 0.9 in the current sample.

Social withdrawal: To address social withdrawal, the authors administered the three-item **negative social consequences subscale** from the **Psychological Consequences Questionnaire**, which has been validated in English (Cockburn et al., 1992). Bicultural, bilingual interviews were forward- and back-translated for this subscale. The subscale was then validated through cognitive interviews with 19 Latinas who had

Table 1. Sociodemographic and Mammography-Based Characteristics (N = 82)

Variable	Latina (n = 41)		NLC (n = 41)		F ^a
	\bar{X}	SE	\bar{X}	SE	
Age (years)	48.83	6.18	50.34	7.12	1.06
Income (\$)**	10,800	13,470	29,000	25,700	15.82
Age at first mammogram (years)	40.75	5.96	39.1	6.45	1.39
Number of mammograms in past five years	2.68	1.93	2.87	1.79	0.21
Days until follow-up care	26.34	16.89	21.72	12.71	1.79

Variable	n	n	χ^2
Foreign-born**	36	3	53.25
English- speaking**	17	41	30.44
High school degree or less*	24	6	—
Unemployed	13	9	0.99
Uninsured**	29	10	17.65
Follow-up care			
Diagnostic mammography	36	37	1.76
Ultrasounds	15	15	0.86
Biopsies	2	16	2.47
Cancer diagnosis	1	3	1.67

NLC—non-Latina Caucasian; SE—standard error

^a F (1, 77–80)

* $p < 0.05$; ** $p < 0.001$

Note. Education was included as a continuous variable in all analyses.

Note. Participants could experience multiple forms of follow-up care.

experienced an abnormal mammogram result. Exploratory factor analysis revealed comparable loadings across English and Spanish versions. Response categories included 0 indicating not at all, 1 indicating rarely, 2 indicating some of the time, and 3 indicating quite a lot of the time. One of the items for this scale is, “As a result of thoughts about my abnormal mammogram result, I have found myself noticeably withdrawing from those who are close to me.” The Cronbach alpha for this instrument was 0.6 in the current sample.

Coping: For coping strategies, the authors administered the **Brief COPE**, whose reliability and validity have been established for English and Spanish versions (Carver, 1997; Perczek, Carver, Price, & Pozo-Kaderman, 2000). Each of the 14 subscales for this instrument includes two items. For all items, participants could choose 1 indicating, “I haven’t been doing this at all,”

2 indicating, “I’ve been doing this a little bit,” 3 indicating, “I’ve been doing this a medium amount,” 4 indicating, “I’ve been doing this a lot,” and 5 indicating, “I’ve been doing an extreme amount.” Subscales varied substantially in reliability for this sample, so the authors included only the seven scales that exhibited adequate internal consistency (Cronbach alpha ≥ 0.6). The list of seven coping scales, including one of the two items that were administered and Cronbach alpha, are self-distraction (“I’ve been turning to work or other activities to take my mind off things,” Cronbach alpha = 0.78), denial (“I’ve been saying to myself, ‘This isn’t real,’” Cronbach alpha = 0.77), substance use (“I’ve used alcohol or other drugs to make myself feel better,” Cronbach alpha = 0.99), active (“I concentrated my efforts on doing something about the situation,” Cronbach alpha = 0.61), emotional support (“I’ve gotten comfort and understanding from someone,” Cronbach alpha = 0.92), humor (“I’ve made jokes about it,” Cronbach alpha = 0.87), and religious coping (“I’ve prayed or meditated about my results,” Cronbach alpha = 0.87).

Analysis

To identify covariates, the authors conducted Pearson’s correlations and analysis of variance (ANOVA) for age, education, income, age at first mammogram, and number of mammograms obtained throughout the past five years. The authors used chi-square tests to assess ethnic differences in place of birth (U.S.- and foreign-born), language (English-speaking or not), employment status (unemployed or not), insurance status (uninsured or not), follow-up (yes or no), and days between the initial screening and subsequent follow-up appointment. The authors conducted two multivariate analysis of covariance (MANCOVA). The first MANCOVA included psychological distress and social withdrawal summary scores as outcome variables, and the second MANCOVA included the seven coping strategies as outcome variables. The authors then conducted mediation models for each outcome using the Preacher and Hayes (2008) method (Hayes, 2009; Hayes & Preacher, 2010). This bootstrap method is a nonparametric resampling procedure that involves sampling from the data set multiple times (5,000 for this study) and generating a sampling distribution. The authors calculated standard error and 95% confidence interval of the effect of ethnicity on psychological distress and social withdrawal through coping. For comparison, the authors also employed the traditional and common Sobel (1987) test of mediation; findings were similar across methods. Given that the Preacher and Hayes (2008) method is considered superior relative for testing mediation among small-to-moderate sample sizes (Fritz & MacKinnon, 2007), the authors only report those findings in the current article.

Table 2. Ethnic Differences in Study Variables of Interest After Adjusting for Education, Income, and Insurance Status (N = 82)

	Latina (n = 41)		NLC (n = 41)		aOR (95% CI)
Variable	n		n		
Scheduled follow-up care	28		36		0.31 [0.0, 1.3]
Variable	\bar{X}	SE	\bar{X}	SE	F(1, 74)
Psychological distress**	3.03	0.25	2.01	0.24	7.4
Social withdrawal*	2.95	0.41	1.65	0.4	4.31
Variable	\bar{X}	SE	\bar{X}	SE	F(1, 70)
Coping strategies					
Self-distraction	3.92	2.15	3.26	2.27	0.06
Denial***	2.73	2.32	0.47	0.92	18.17
Substance abuse	0.05	0.33	0.21	1.02	0.001
Active	3.38	2.19	3.34	2.26	0.13
Emotional support	3.78	2.5	3.55	2.38	1.29
Religious or spiritual	4.65	2.5	2.71	2.6	11.41
Humor	0.49	1.26	1.42	2.07	2.89

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

aOR—adjusted odds ratio; CI—confidence interval; NLC—non-Latina Caucasian; SE—standard error

Note. Psychological distress was measured using the Impact of Event Scale–Revised, social withdrawal was measured using the Psychological Consequences Questionnaire subscale, and coping strategies were measured using the Brief COPE.

Results

Because very few cases were missing (less than 5%), the authors used listwise case deletions to accommodate them (Schafer & Graham, 2002). Table 1 provides sociodemographic and clinical variables. All women in this study were initially classified as category 0 in the BI-RADS® Atlas. The authors did not find significant evidence of ethnic differences in time to follow-up care, receipt of procedures, or breast cancer diagnoses. Several ethnic differences emerged; Latinas were less likely to speak English and more likely to have been born outside of the United States. Latinas also appeared to be more socioeconomically disadvantaged in terms of education, income, and insurance status relative to NLC counterparts. Sociodemographic and clinical variables (e.g., mammography history, receipt of specific diagnostic procedures) were largely not associated with distress, social withdrawal, and coping. Income was negatively correlated with denial coping ($r = -0.35$, $df = 78$, $p = 0.002$) and substance use ($r = 0.25$, $df = 80$, $p = 0.03$). Of note, follow-up care adherence and time to follow-up were not associated

with distress, social withdrawal, or coping. Given the findings, education, income, and insurance status (i.e., having insurance) were included as covariates in subsequent analyses.

Ethnic Differences in Psychological Distress, Social Withdrawal, and Coping Strategies

Table 2 provides ethnic differences in psychological distress and coping strategies, after adjusting for the covariates noted previously. Latinas reported greater psychological distress and social withdrawal (Wilks' $\lambda = 0.9$, $F[2, 73] = 4.12$, $p = 0.02$). Most women appeared to employ active, emotional support, and spiritual or religious coping in response to an abnormal mammogram. After adjusting for education, income, and insurance status, Latinas and NLC women differed in coping (Wilks' $\lambda = 0.65$, $F[7, 64] = 4.9$, $p < 0.0001$). Subsequent analysis revealed that Latinas were more likely to employ denial and religious coping following receipt of an abnormal mammogram. A nonsignificant trend also occurred in which NLC women appeared to be marginally more likely to employ humor in coping ($p = 0.09$).

Mediation Model

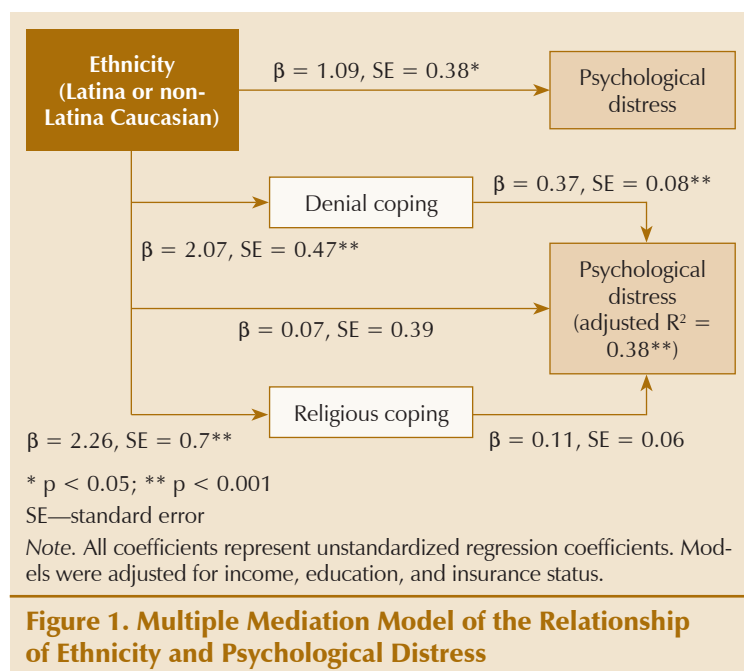
The authors conducted two mediation models to assess the role of denial and religious coping in ethnic differences in psychological distress and social withdrawal. Denial coping appeared to fully mediate differences between ethnicities in psychological distress (see Table 3 and Figure 1), and Latinas appeared to exhibit greater psychological distress as a result of employing more denial coping. Religious coping emerged as a significant mediator of ethnic differences in social withdrawal; Latinas were more likely to be socially withdrawn following receipt of an abnormal mammogram because of religious coping (see Figure 2).

Table 3. Mediation of the Effects of Ethnicity on Denial and Religious Coping After Adjusting for Education, Income, and Insurance Status (N = 70)

Model	Mediation Effect (A x B)	Bootstrap Results (95% CI)
Psychological distress		
Denial coping ^a	0.77	[0.49, 1.71]
Religious coping	0.25	[0.0, 0.67]
Total indirect effects ^a	1.02	[0.38, 1.98]
Social withdrawal		
Denial coping	0.58	[−0.05, 1.57]
Religious coping ^a	0.49	[0.08, 1.18]
Total indirect effects ^a	1.08	[0.32, 2.14]

^a Significant effect as determined by 95% CI

CI—confidence interval



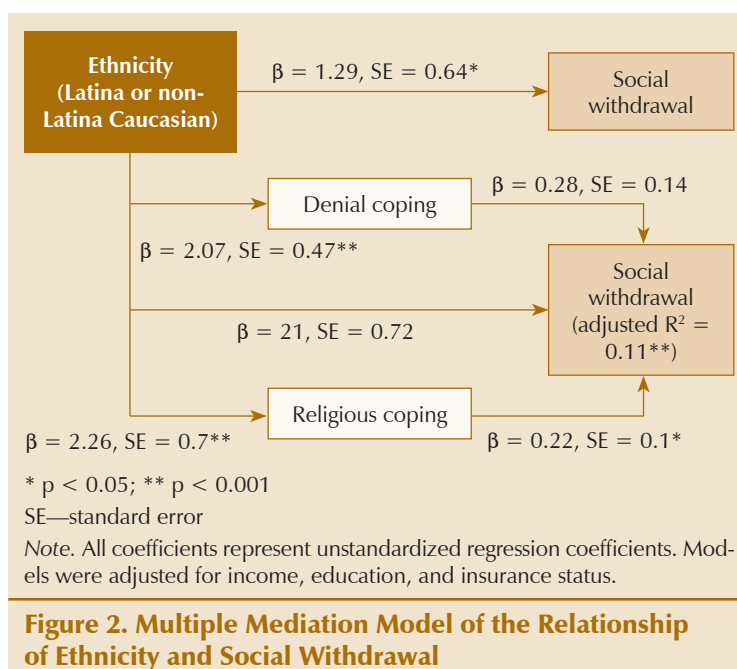
Discussion

This exploratory study is among the first to assess ethnic differences in negative psychosocial outcomes following an abnormal mammogram and to assess the role of coping strategies as mediators in ethnic differences. The findings provide preliminary evidence that Latinas experience greater psychological and social withdrawal following receipt of an abnormal mammogram result compared to NLC counterparts. This pilot study suggests that these differences should be considered in the context of coping with abnormal mammogram results. Latinas appeared to experience greater psychological distress and negative social withdrawal through greater use of denial and religious coping, respectively. These findings are important first steps toward future projects with larger samples that may further assess differences in psychosocial factors following an abnormal mammogram and their relationship to cancer disparities. Understanding differences in psychosocial functioning and the role of coping strategies in response to the stressful situation of receiving an abnormal screening result will help to inform the design and content of future interventions and programs dedicated to improving the well-being of traditionally underserved and vulnerable populations (e.g., Latinas). Nurses and other healthcare professionals may alleviate patient distress through counseling with regard to coping strategies in a culturally tailored manner.

Differences in psychological distress and social withdrawal following an abnormal

mammogram are perhaps not surprising in the context of documented differences in distress among Latina and NLC women with breast cancer and survivors (Ashing-Giwa et al., 2006; Janz et al., 2009) and the importance of social functioning for quality of life among Latinas (Buki et al., 2008; Sammarco & Konecny, 2008). The authors found no research that explored ethnic differences during early detection and diagnostic evaluation; the current study contributes to a growing body of work that suggests psychosocial disparities exist across the cancer continuum. The differences in psychological distress and social withdrawal noted in the authors' work may warrant attention because previous work has suggested emotional distress is linked to diagnostic delays among Latinas (Allen et al., 2008; Ashing-Giwa et al., 2010).

A substantial amount of literature concerns ethnic differences in coping among patients with cancer and survivors, and the current findings support that work. This study contributes to existing research concerning relationships between coping strategies and psychological distress. Recent comprehensive reviews have indicated a wide range of coping strategies used following an abnormal mammogram result, and they have also indicated the need for more research to characterize associations between coping and psychosocial outcomes (Andrés-Hyman et al., 2006; Bond et al., 2013; Molina et al., 2013; Montgomery, 2010). In contrast to previous literature (Alderete et al., 2006), religious coping was not affiliated with psychological distress in the current study.



Differences in findings may be because of differences in study samples as well as measurement of religious coping (e.g., Brief COPE versus measurement of weekly attendance at religious services). Religious coping may vary across ethnicities with regard to associations to psychological distress and other forms of coping. A study by Umezawa et al. (2012) indicated belief in the divine was negatively related to avoidance coping among low-acculturated Latinas but not other ethnic groups. Additional studies are needed to characterize the association between different forms of coping and psychological distress across multiethnic samples. Findings about denial coping and distress also suggest a need to distinguish between types of avoidant coping and compare the effects on mental health outcomes. For example, cognitive distraction has been noted to be protective for mental health during an abnormal mammogram experience, and behavioral distraction and substance use have been positively related to anxiety symptoms (Andrés-Hyman et al., 2006; Bond et al., 2013; Montgomery, 2010).

The authors' mediation models also support future characterization of different coping strategies. Denial coping was significantly associated with psychological distress, and religious coping was significantly associated with social withdrawal. These findings provide preliminary evidence concerning the importance of denial coping for future longitudinal studies and counseling interventions for Latinas in terms of psychological distress. The findings suggest that Latinas may be more socially withdrawn because of a greater reliance on religious coping. Latinas may be employing spiritual resources more than social resources because of fear of burdening the family and causing the family to worry. This would coincide with qualitative literature suggesting that women do not rely on social resources to protect family and friends from undue stress (Austin et al., 2002; Logan et al., 2006). Reliance on spiritual coping should be addressed in future studies to better understand how strategies, such as prayer and reliance on spiritual beliefs, may influence the abnormal mammography experience for Latinas.

Distress, social withdrawal, and coping were not associated with follow-up care adherence among Latinas and NLC women, which is in contrast to previous research with larger sample sizes that has documented associations between cancer worry and delay among Latinas (Ashing-Giwa et al., 2010). Additional studies will help to elucidate these conflicting findings. This study also provides preliminary findings that call for future research concerning the influence of psychological sequelae following an abnormal mammogram on subsequent screening practices to determine the long-term consequences of elevated distress among Latinas. Elevated distress and social withdrawal fol-

lowing an abnormal screening result may be particularly important with regard to subsequent distress and quality of life among women diagnosed with breast cancer and for cancer worry among women not diagnosed with breast cancer. Researchers must conduct studies concerning the relationship between ethnic differences in distress and social withdrawal following an abnormal mammogram result to disparities in psychological health among patients with cancer and survivors (Ashing-Giwa et al., 2006; Janz et al., 2009). That research will help to inform the need for future psychosocial interventions for Latinas who receive an abnormal result.

Limitations

This study had several limitations. This was a pilot study with relatively small samples of Latinas and NLC women. Women were recruited through convenience sampling, and the findings are not likely to be representative of broader Latina and NLC samples. For example, women in the current sample are relatively young compared to current recommended guidelines by the U.S. Preventive Services Task Force (2009). However, the women were within the range of guidelines per the American Cancer Society (2014b) and the National Comprehensive Cancer Network (Beverly et al., 2009). Although the current sample included women living in rural and urban areas, the sample was underpowered to test differences in rural and urban women's experiences. The majority of women from the sample were recruited from mobile mammography services, which may have influenced the generalizability of the findings.

Another important confounder is the effect of study participation on linguistic barriers, which have been documented to influence diagnostic resolution following receipt of an abnormal mammogram result. A recent study found that the majority of clinics distributing screening mammogram results only provide letters in English (Marcus, Koru-Sengul, Miao, Yepes, & Sanders, 2014); the majority of the patients in the current sample came from sites with this type of protocol. Linguistic barriers and comprehension of abnormal screening results have been noted to influence diagnostic delays and patient satisfaction among Latinas and women with English-limited proficiency (Allen et al., 2008; Marcus et al., 2014; Mojica, Bastani, Ponce, & Boscardin, 2007; Poon et al., 2004). Women who were recruited to participate in this project were able to interact with bilingual research staff and, therefore, were potentially more likely to understand that they had received an abnormal mammogram result and needed to schedule follow-up care.

Several of the survey instruments demonstrated adequate, but low, internal consistency (e.g., social withdrawal, active coping). The authors used instruments that had multiple items with psychometrically robust

properties. Future research could use instruments used in research and clinical settings (e.g., National Comprehensive Cancer Network Distress Thermometer) to better inform practice. The majority of baseline surveys were conducted prior to administration of biopsies and cancer diagnoses, which are likely to influence coping strategies and distress (Steffens, Wright, Hester, & Andrykowski, 2011). The authors did not collect data on the history of previous receipt of abnormal results, which may have influenced distress and coping strategies.

The authors used a simplistic conceptual model that focused on ethnicity, coping, distress, and withdrawal in the context of the abnormal mammogram experience. Variation in coping after an abnormal mammogram experience may be because of several factors that were not included in this study, such as family history of breast cancer, previous experience with breast biopsies, and unrelated stressors (e.g., financial stress, work history). The current study focused on mediating roles of coping strategies, but recent qualitative research on coping following an abnormal mammogram has suggested coping strategies may depend on other sociodemographic and personality characteristics (Austin et al., 2002; Umezawa et al., 2012). The sample size did not have sufficient statistical power to assess the moderating role of coping strategies or the influence of these factors on coping. Future population-based research with larger sample sizes should include the variables in more complicated models. Future research is warranted to elucidate this study's findings as well as the broader literature on coping following an abnormal mammogram. Future studies with larger samples and those that do not affect standard delivery of care are important to confirm differences in psychological and social withdrawal following receipt of an abnormal mammogram result as well as to clarify relationships between disparities in negative psychosocial outcomes and receipt of recommended follow-up care guidelines.

Implications for Practice and Research

Additional research is warranted to address the role of psychological sequelae (e.g., distress, social withdrawal) on follow-up care adherence as well as other long-term behavioral consequences (e.g., screening practices). Research is needed concerning the effect of distress and social withdrawal following an abnormal mammogram on subsequent breast cancer worry and quality of life for women diagnosed with breast cancer and those who are not. Future interventions should target denial coping to mitigate distress among Latinas. To improve access to social support resources, interventions may also incorporate religious coping strategies. The benefits of disclosure to family about

Knowledge Translation

Latinas are more likely to exhibit greater distress and social withdrawal than non-Latina Caucasian (NLC) women after an abnormal mammogram.

Latinas appear to exhibit greater distress than NLC women because of greater denial coping.

Latinas appear to exhibit greater social withdrawal than NLC women because of greater religious coping.

abnormal results and reliance on social support may be described through noting the emphasis of family in religious contexts for Latinas.

Coping interventions may be particularly well received by Latinas when they are administered by nurses because of cultural values that emphasize strong interpersonal relationships as well as respecting and attending to authority figures (Marin & Marin, 1991). Practitioners working with Latinas who receive abnormal results may be ideally suited to mitigate distress within this population through addressing coping skills. Oncology nurses may wish to address coping strategies to mitigate distress and social withdrawal among Latina patients with cancer because coping strategies used during receipt of an abnormal mammogram result may also be used upon receipt of a cancer diagnosis and throughout treatment (Ashing-Giwa et al., 2004; Culver et al., 2002, 2004).

Conclusions

The current study provides important contributions to the existing body of research addressing ethnic disparities along the cancer continuum. This preliminary work suggests that Latinas experience poorer psychosocial outcomes, including elevated psychological distress and social withdrawal. The additional psychosocial distress experienced by Latinas was found to be linked to types of coping. Additional studies should be conducted to understand the mechanisms used to diminish psychological distress and to develop interventions and improve clinical practice to assist women who receive an abnormal mammogram.

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