

The Influence of Social Support on Breast Cancer Screening in a Multicultural Community Sample

Maria C. Katapodi, RN, MS, Noreen C. Facione, RN, FNP, PhD, Christine Miaskowski, RN, PhD, FAAN, Marilyn J. Dodd, RN, PhD, FAAN, and Catherine Waters, RN, PhD

Purpose/Objectives: To examine the relationship between women's reported social support and their adherence to recommended breast cancer screening guidelines.

Design: Descriptive, cross-sectional survey.

Setting: Community women's organizations throughout the San Francisco Bay Area.

Sample: 833 mostly low-income women with a mean age of 46.2 years from three racial or ethnic groups (i.e., Latina, Caucasian, and African American) who were not breast cancer survivors.

Methods: Social support was measured with a five-item, four-point, Likert scale developed for the study (Cronbach's alpha = 0.7248). Adherence to screening guidelines was measured by asking frequency of performing breast self-examination (BSE) and frequency of obtaining a clinical breast examination (CBE) and a mammogram. Research assistants and leaders of women's organizations conducted the survey in work and community settings.

Main Research Variables: Social support, performance of BSE, obtaining a CBE and a mammogram, income, education, spoken language, and level of acculturation.

Findings: Higher levels of social support were related to higher income and higher education. Lower levels of social support were associated with being Latina, completing the survey in Spanish, and being born abroad. Women who did not adhere to screening guidelines (for BSE or CBE) reported less social support.

Conclusions: Social support is associated with adherence to breast cancer screening guidelines.

Implications for Nursing: Nurses should assess women's levels of social support as a factor when evaluating adherence to breast cancer screening guidelines.

Key Points . . .

- ▶ Social support enhances positive health outcomes and well-being.
- ▶ Community-based cancer screening programs that use lay health advisors assume that supportive interpersonal relationships facilitate screening behavior.
- ▶ Nurses should assess women's levels of social support as a factor when evaluating adherence to breast cancer screening guidelines.
- ▶ Nursing can play an important role in promoting screening behavior by fostering sources of support.
- ▶ Future research needs to investigate whether certain sources or kinds of social support are more important than others in influencing breast cancer screening behavior.

influence their attitudes about breast cancer screening. Commonly cited breast cancer screening barriers are lack of medical insurance, low annual income, low education level, and issues associated with race or ethnicity (Bastani et al., 1995; Pearlman, Rakowski, Ehrich, & Clark, 1996). Cultural factors that have a negative impact on breast cancer screening are issues of privacy and modesty, lack of knowledge that breast cancer risk increases with age, lack of appreciation of preventive medicine, fear of finding cancer, spoken language, and a nonsupportive spouse or partner, especially for Latinas (Choudhry, Srivastava, & Fitch, 1998; Facione & Katapodi, 2000; Flores & Mata, 1995; Oktay, 1998).

Maria C. Katapodi, RN, MS, is a PhD student; Noreen C. Facione, RN, FNP, PhD, is an associate professor in the Department of Physiological Nursing; Christine Miaskowski, RN, PhD, FAAN, is a professor and chair of the Department of Physiological Nursing; Marilyn J. Dodd, RN, PhD, FAAN, is a professor and the associate dean in the School of Nursing; and Catherine Waters, RN, PhD, is an associate professor in the Department of Community Health Care Systems, all at the University of California, San Francisco. This work was funded by the California Breast Cancer Research Program Grant 1-KB-0045, Alpha Eta Chapter of Sigma Theta Tau International Honor Society of Nursing, and the University of California, San Francisco Research Center for Symptom Management. (Submitted February 2001. Accepted for publication August 7, 2001.)

Digital Object Identifier: 10.1188/02.ONF.845-852

The links between social support, positive health outcomes, and well-being are well established, and individuals who have social and community ties have lower morbidity and mortality rates than those who lack social support (House, Landis, & Umberson, 1988). Social support is hypothesized to act in a three-fold manner. It can influence individuals' appraisals of how stressful events seem, it can influence their appraisals of coping options, and it can have a direct impact on health behaviors (Komproe, Rijken, Ros, Winnubst, & Hart, 1997).

Compared with men, women appear to be more influenced to perform positive health behaviors when they have adequate supportive relationships (Molinari, Ahern, & Hendryx, 1998). Therefore, women's social support networks are expected to

Numerous studies report the beneficial impact of social support on women's psychological well-being and coping abilities through every stage of breast cancer illness, from the moment of diagnosis until death (Hoskins et al., 1996; Lungton, 1997; Maunsell, Brisson, & Deschenes, 1995; Northouse, Laten, & Reddy, 1995). However, because much of the success of breast health depends on women's decisions to adhere to screening guidelines, factors that underlie these decisions must be understood. Participation in cancer screening programs requires that women are aware of the recommended screening guidelines, perceive a benefit from early cancer detection, successfully negotiate the healthcare delivery system, and tolerate the potential threat posed by positive screening reports (Flax & Earp, 1999; Reppucci, Woolard, & Fried, 1999). Currently, the design of community-based cancer screening programs assumes that supportive interpersonal relationships facilitate breast cancer screening behavior and improve adherence to the recommended guidelines. However, the ways that social support might affect breast cancer screening are not clear.

Background

Social support is defined as the exchange of resources between at least two individuals, the provider and the recipient, with the intention of improving the well-being of the recipient. Structural characteristics of social support refer to the composition of a social network or sources of support, whereas functional characteristics refer to the provision of particular resources or types of support (Komproe et al., 1997; Stewart, 1989). Four different functions of social support have been described: emotional support, instrumental support, appraisal support, and informational support. Family members offer emotional support like esteem, trust, concern, and listening. Instrumental support consists of aid in kind, money, labor, and time. Peers offer appraisal support that enhances the individual's self-esteem. Informational support consists of advice, suggestions for problem solving, directives, and information (Gotay & Wilson, 1998).

Few studies have focused specifically on the influence of social support on breast cancer screening. One randomized, controlled trial (Taylor et al., 1998) examined predisposing, enabling, and reinforcing factors for seeking breast cancer screening in a sample of 348 inner-city women of different ethnic groups, aged 50 and older. Reinforcing factors for breast cancer screening included, among others, whether their physicians, family, or friends had advised the women to have a mammogram. Similarly, another study that identified predisposing, enabling, and reinforcing factors for breast cancer screening in a random sample of 653 women aged 40 and older who were mostly African American reported that support from family and friends was a reinforcing factor for breast cancer screening (Mickey, Durski, Worden, & Danigelis, 1995).

The "A Day for Latino Women" project provided education about breast and cervical cancer screening to Latinas and examined factors underlying screening behavior in that population (Frank-Stromborg, Wassner, Nelson, Chilton, & Wholeben, 1998). The sample included 81 women with a mean age of 33 years, who primarily were born in Mexico and were married. The majority of the women reported that the program helped alleviate screening barriers and that they had support from a spouse or partner to participate.

One of the earliest studies that explored the differences in behaviors between frequent and infrequent performers of

breast self-examination (BSE) was the study conducted by Lierman, Kasprzyk, and Benoliel (1991). The study included a sample of 93 women with a mean age of 70.5 years. The majority of the women were married and had at least a high school education. Support from family and friends was correlated strongly with BSE performance and contributed significantly to the prediction of BSE performance.

A study by Wagle, Komorita, and Lu (1997) examined the influence of social support on BSE frequency in older women. The study included a convenience sample of 22 women with a mean age of 61.8 years. Twenty-one women were Caucasian, the majority were married, and 21 had at least a high school education. The researchers measured social support using the Norbeck Social Support Questionnaire (Norbeck, Lindsey, & Carrieri, 1983). The frequency of BSE was measured by asking women to indicate the number of times they practiced BSE, with choices ranging from no practice to at least once a month. Social support correlated significantly with frequency of BSE performance ($r = 0.45$, $p < 0.05$).

Although the previous studies are well designed, the results cannot be generalized to all women. In these studies, women mostly were older than 50 and Caucasian, and the vast majority had at least a high school education; some studies had small sample sizes.

The purpose of the current study was to examine the relationship between social support and women's adherence to breast cancer screening guidelines and to examine whether women who reported having more social support followed recommended screening guidelines more frequently.

Theoretical Framework

This study is based on a conceptual framework that was developed by Facione and Katapodi (2000) and represents variables that are central to screening behavior and lead to the decision to acquire breast cancer screening. Researchers assumed that higher levels of social support would influence breast cancer screening behavior in many ways. Social support provides women with more assistance to overcome barriers (e.g., childcare, transportation). Moreover, it provides women with more opportunities to learn about the value of cancer screening. Finally, it influences personal risk perception through information that becomes available to the individuals and advice offered by influential others (see Figure 1). Therefore, researchers hypothesized that a significant relationship would occur between women who report higher levels of social support and those who appear to be more adherent to breast cancer screening guidelines. More information about the components of this theoretical framework can be found elsewhere (Facione, 1999; Facione, Miaskowski, Dodd, & Paul, 2002).

Methods

This study is part of a large, cross-sectional, community-based survey investigation of women's breast cancer early detection behavior that recruited a convenience sample of 838 women from the San Francisco Bay Area (Facione et al., 2002).

Sample

The sample was stratified by income, age, and education. In addition, three main racial or ethnic populations were recruited for the study: African American, Caucasian, and

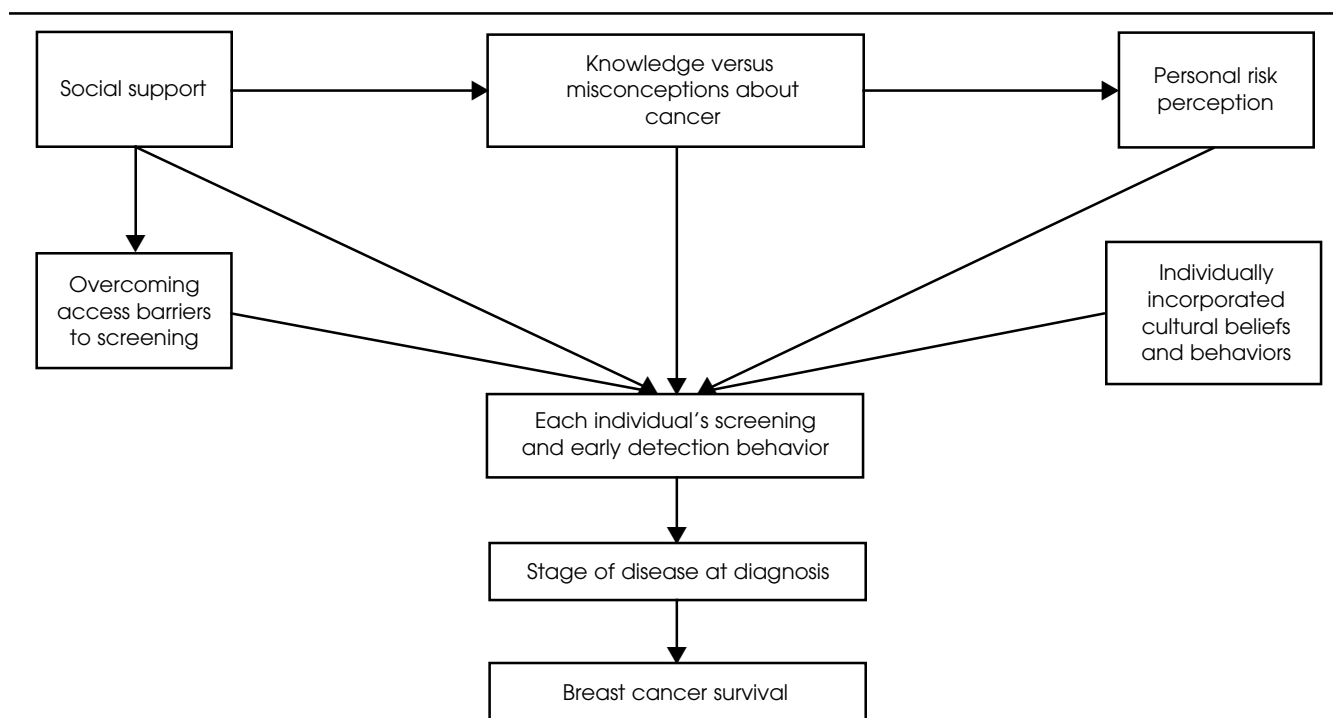


Figure 1. Theoretical Framework: Breast Cancer Screening Behavior

Latina. Inclusion criteria for the study were ability to provide informed consent, ability to communicate either in English or in Spanish (if necessary, with assistance in reading the survey items), currently residing in the San Francisco Bay Area, and being at least 18 years old. Exclusion criteria were breast cancer survivors and women who could not complete the survey even with help from a research assistant. The study aimed to recruit at least 250 women in each of the three racial or ethnic groups. Researchers determined this number by a power analysis anticipating analysis of variance (ANOVA), conservatively small effect sizes, a pre-set reliability of 0.80, and an error rate of less than 0.05.

Procedure

Personal visits and telephone contacts were made with women leaders at community organizations (e.g., churches, senior centers, county agencies, women's social organizations, community cultural centers) throughout the San Francisco Bay Area. Locations were chosen to achieve the diversity in age, income, education, and racial or ethnic background desired for the sample. No surveys were collected in healthcare settings to minimize the overrepresentation of women who already had accessed the healthcare system successfully or those who had more frequent use habits than the general population.

Research assistants provided female organization leaders who welcomed entry to the study with a sample of project materials, statistics on both breast cancer incidence and five-year survival for women represented in their community agency, a one-page description of the project, a sample consent form, and text describing the study for flyers and newsletters. The research team worked with organization leaders to identify organization meetings where women could be contacted about study participation and situations in which they could complete survey packets conveniently. The research assistants

attended organization meetings, visited work settings, and introduced the study. Each participant gave informed written consent. In addition, a bilingual telephone voice message was set up to facilitate participant contacts with the project staff and communication with participating agencies.

Participants completed the surveys in approximately 45 minutes. In most cases, the surveys were completed in the presence of the project staff, but occasionally they were returned by mail. In other cases, organization leaders collected the surveys and transmitted them in bulk to the project staff. After returning the survey, participants received a \$10 remuneration and American Cancer Society and National Cancer Institute literature regarding breast cancer symptoms, BSE, and mammography screening guidelines. The surveys were collected over an eight-month period.

Instruments

Social support was measured by a combination of items. Fleming, Baum, Gisriel, and Gatchel (1982) originally designed two of the items used in the study: "I often do not have anyone to turn to" and "I do not know anyone whom I can confide in." No information is available about the reliability and validity of the items developed by these authors in other samples. One of the researchers developed three additional items for this investigation. However, all items have face validity. The internal consistency reliability of the social support measure was evaluated using factor analytic methods, and the Cronbach's alpha coefficient was calculated for all cases with no missing data. The five items loaded on a single factor, social support, in both the English and Spanish language forms. Factor loadings ranged from 0.674–0.814. On the basis of these analyses, the five, four-point, Likert-style items were summed to create the measure of social support used in the study. The Cronbach's alpha coefficient for the English form of

the measure ($\alpha = 0.81$) was stronger than that of the Spanish language form ($\alpha = 0.65$). The minimum possible score on the social support measure was 5 and the maximum possible score was 20. The five items used in the study assess both structural and functional characteristics of social support (see Figure 2).

Women indicated family annual income by selecting from categories that ranged from “less than \$9,999/year” to “more than \$90,000/year” in \$10,000 increments. Women indicated their education level by marking the most advanced school that they had attended on a list of seven options: grade school, high school, vocational school, junior college, college/university, graduate school, or I have not had the opportunity to go to school.

Adherence to BSE guidelines was measured with the item, “How often do you examine your breasts?” Women were given four options: never, rarely, regularly (monthly), or very often (more than monthly). Adherence to mammography guidelines was assessed with the item, “How often do you have a mammogram?” Again, women had four options: never, once or twice before, every one or two years, or I am too young to have a mammogram. Using a four-point Likert scale statement that ranged from “strongly agree” to “strongly disagree,” researchers assessed the frequency of obtaining a clinical breast examination (CBE) by asking women to respond to the item, “I go to my provider every year or two to get my breasts examined for breast cancer.”

Level of acculturation was measured using a six-item acculturation scale developed by Marin, Sabogal, Marin, Otero-Sabogal, and Perez-Stable (1987). The items assessed spoken language, language spoken at home, language in which the individual thinks, language spoken with friends, language of preferred television programs, and ethnicity of close friends. The items used a five-point, Likert-style response that ranged from “1 = Only Spanish” (or “1 = All Latinos/Hispanics” for the last item) to “5 = Only English” (or “5 = All Americans” for the last item). The research team measured acculturation because they hypothesized that a significant proportion of Spanish-speaking women in the Bay Area would be born outside the United States. Moreover, reports indicate that acculturation is associated with available social support (Griffith & Villanencio, 1985).

Analysis

Data analysis was done using the Statistical Package for the Social Sciences® [SPSS] Version 8.0 (SPSS Inc., Chicago, IL). Research assistants double-entered data and compared files to eliminate data coding errors. Demographic data were analyzed to describe the survey sample. The research team described the frequency and distribution of each of the study variables and examined relationships between each of the demographic variables and social support. The research team tested the significance of

correlations using Pearson’s product-moment correlation coefficient, Cramer’s V, and Eta square analyses. The research team also tested the differences between groups using Student’s t test and ANOVA with Scheffe and Bonferroni posthoc contrasts (Cohen & Cohen, 1983; Glantz & Slinker, 2001).

Results

Sample Characteristics

A total of 838 participants completed the survey. Five of these cases had more than two missing responses on the social support scale and were eliminated from the analysis, providing a sample of 833 responses for analysis. The mean age was 46.2 years ($SD = 15.14$, range = 19–99). Just over 1 in 10 women ($n = 108$, 13%) reported an annual family income greater than \$90,000, but the sample was comprised overall of low-income women, with 39% reporting an annual family income of less than \$20,000. The majority of the women (58%) had at least some college education.

A total of 313 women (38%) self-identified as Latina, 286 (34%) as Caucasian, and 234 (28%) as African American (see Table 1). ANOVA and posthoc contrasts revealed that African American women and Latinas were significantly younger than Caucasian women ($F[2,818] = 10.595$, $p < 0.001$). The family annual income of women of the three racial or ethnic groups were significantly different ($F[2,789] = 64.365$, $p < 0.001$). Posthoc contrasts revealed that Caucasian women had significantly higher family annual income than both African American women and Latinas, and African American women had a marginally significant higher family annual income than Latinas. Ethnicity was related significantly to educational level (Cramer’s V = 0.371) and explained approximately 14% (Eta^2) of this variable. Approximately two-thirds of Latinas in the sample had less than a college education, whereas the opposite is true for African American and Caucasian women.

Relationship Between Social Support and Demographic Characteristics

Overall, the women in this sample reported high levels of social support ($\bar{X} = 16.18$, $SD = 3.11$, range = 5–20, $Md = 17$). Only 15% of the women in the sample scored below the mathematical mean for the five-item measure ($\bar{X} = 12.5$), indicating that, on average, nearly 85% of the sample indicated responses consistent with high levels of social support. Levels of social support were examined in relationship to several demographic variables. Table 2 demonstrates significant relationships between mean social support scores and demographic characteristics.

The relationship between age and income in this sample was not significant, nor did a significant correlation exist be-

English

1. When I need suggestions on how to deal with a personal problem, I have someone I can turn to.
2. If I was sick, I could easily find someone to help me with my daily work.
3. There is at least one person I know whose advice I really trust.
4. I often do not have anyone to turn to.
5. I do not know anyone whom I can confide in.

Spanish

1. Tengo alguien con quien puedo contar si necesito una opinion sobre un problema personal.
2. Si estuviera enferma, yo podria facilmente encontrar alguien que ayude con mis actividades diarias.
3. Conozco por lo menos a una persona en cuyos consejos puedo confiar.
4. Muy a menudo no tengo alguien con quien puedo contar.
5. No conozco a nadie con quien pueda hablar en confianza.

Figure 2. Social Support Scale

Table 1. Demographic Characteristics

Characteristic	Racial or Ethnic Group		
	Latina	Caucasian	African American
Age (years)			
\bar{X}	45.41	49.34	43.44
SD	16.60	15.30	12.00
Income (x \$10,000)			
\bar{X}	3.20	5.95	4.03
SD	2.62	3.21	3.01
Education level (%)			
Grade school	26.38	1.05	0.43
High school	41.37	17.54	36.05
College or university	25.73	51.58	48.50
Graduate school	6.52	29.83	15.02

tween age and the social support score. When income was modeled as a continuous variable, a positive correlation existed between social support and income, with higher annual family income associated with higher levels of social support. The research team used ANOVA to examine differences in social support scores by income category. A significant difference existed ($F[9,780] = 8.57, p < 0.001$), and posthoc contrasts showed that this difference in social support levels fell between women whose family annual income was \$80,000 per year or higher when compared to all other groups.

Social support scores differed significantly by educational level. Women who had only grade school education reported significantly lower social support compared to those with only high school education or those with graduate school education. Women with college or university education did not report significantly lower levels of social support than those who attended graduate school.

Significant differences were found in the mean social support scores among the three racial or ethnic groups. Posthoc contrasts revealed that the Latinas reported significantly lower

mean social support scores compared with Caucasian and African American women. All but 25 of the 278 women born outside the United States self identified as Latina. Women born in the United States had significantly higher social support scores than those born in other countries. Being born outside of the United States was related significantly to having completed the survey in Spanish (Cramer's $V = 0.57$) and explained 33% (Eta^2) of the variance in the language variable. Mean social support scores differed significantly by spoken language. Women who completed the survey in English had significantly higher social support scores than women who completed the survey in Spanish.

Acculturation was measured only in the Latina group. Acculturation scores ranged from 6–29, and the mean score in the Latina group was $\bar{X} = 13.35$ ($SD = 6.54$). A small but significant positive correlation existed between levels of acculturation and social support scores ($r = 0.28, p < 0.001$) for this group of Latinas. However, level of acculturation was not a significant predictor of adherence to screening guidelines.

Relationship Between Social Support Scores and Cancer Screening Behavior

Table 3 demonstrates the mean scores of social support according to different breast cancer screening behaviors. Adherence to mammography guidelines was examined only for women who were aged 40 or older ($n = 507, 61\%$). None of these women responded that they were too young to have a mammogram. ANOVA in the 435 (86%) women who supplied mammography screening information revealed that no significant differences existed in the mean social support scores reported by each group. The remaining 72 women (14%) declined to respond to this question.

ANOVA revealed significant differences in the mean social support scores among women who reported performing BSE as recommended by screening guidelines, those who rarely performed BSE, and those who never performed BSE. Posthoc Scheffe and Bonferroni contrasts revealed that women who never performed BSE had significantly lower so-

Table 2. Demographic Characteristics and Social Support

Variable	n	%	Social Support			Statistical Test	p
			Mean Score	SD	Range		
Income	833	100	16.18	3.11	5.00–20.00	$r = 0.29$	< 0.001
Education						$F(3,821) = 24.96$	< 0.001
Grade school	85	10	13.76	2.98	5.00–19.00	–	–
High school	261	31	16.00	3.25	5.00–20.00	–	–
College or university	339	41	16.60	2.78	5.00–20.00	–	–
Graduate school	140	17	17.00	2.88	6.00–20.00	–	–
Missing	8	1	–	–	–	–	–
Racial or ethnic group						$F(2,830) = 36.56$	< 0.001
Latina	313	38	15.04	3.38	5.00–20.00	–	–
Caucasian	286	34	16.85	2.57	8.00–20.00	–	–
African American	234	28	16.89	2.89	6.00–20.00	–	–
Place of birth						$t = 8.61$	< 0.001
Born in the United States	550	67	16.82	2.77	–	–	–
Born in other countries	278	33	14.93	3.56	–	–	–
Missing	5	< 1	–	–	–	–	–
Language						$t = 10.08$	< 0.001
English	605	73	16.81	2.77	–	–	–
Spanish	228	27	14.51	3.34	–	–	–

Note. Because of rounding, not all percentages total 100.

Table 3. Breast Cancer Screening Behavior and Social Support Scores

Screening Behavior	n	%	Social Support Mean Score	SD	Statistical Test	p
How often do you have a mammogram?^a					F(2,462) = 1.94	NS
Never	28	6	15.35	4.00	-	-
Once or twice	89	18	16.22	3.19	-	-
Every one or two years	318	63	16.51	3.00	-	-
Missing	72	14	-	-	-	-
Total	507	100	-	-	-	-
How often do you examine your breasts?					F(2,783) = 18.71	< .001
Never	79	9	14.30	4.03	-	-
Rarely	366	44	16.22	2.96	-	-
Follow guidelines	341	41	16.64	2.92	-	-
Missing	47	6	-	-	-	-
I go to my provider every year or two to get my breasts examined for breast cancer.					t = 5.61	< .001
Did not follow guidelines (disagree, strongly disagree)	198	24	15.08	3.55	-	-
Follow guidelines (strongly agree, agree)	635	76	16.53	2.87	-	-
Missing	0	-	-	-	-	-

^a Asked only of women aged 40 and older.

cial support in comparison to those who rarely performed BSE and those who followed recommended guidelines.

Adherence to CBE guidelines was reported by 635 women (76%). Women who followed recommended guidelines had significantly higher social support scores than those who did not.

Discussion

This study is one of the first to directly examine the relationship between self-reported social support and adherence to recommended breast cancer screening guidelines. It also was one of the first extended to a large sample of women from three racial or ethnic groups. Moreover, a significant relationship existed between social support and adherence to breast cancer screening guidelines that validates the assumption that women with more social support are more likely to adhere to recommended breast cancer screening guidelines.

In general, women reported moderately high to high levels of social support, and this was most evident in the wealthiest and highest-educated women in the sample. Income and educational level are the two factors that are used to demonstrate socioeconomic status (SES). Triandis (1990) suggested that more affluent people may be more competent at finding or “buying” adequate social support and are likely to be members of diverse groups that entail a wider variety of resources. Higher SES is proposed to be associated with good health status because knowledge, money, power, and social prestige usually accompany higher SES (Link, Northridge, Phelan, & Ganz, 1998). More affluent people are better able to avoid health risks by taking advantage of the protective strategies that are available to them. Consistently, women in the current study’s sample who were more affluent, more educated, or both were more likely to report higher levels of social support, and women in the highest range of annual income had significantly higher social support scores.

Deyo, Diehl, Hazuda, and Stern (1985) reported that income and education confound the relationship between ethnicity, acculturation, and preventive health behaviors, and that acculturation might be an important covariate to assess

health behaviors and attitudes. Triandis (1990, 1997) suggested that migration and social mobility are factors that impede social support. Reports indicate that informal social support networks offer vital assistance to Latinos who are coping with stressful situations (Guidry, Aday, Zhang, & Winn, 1997) and that Latino immigrants are more vulnerable to stress precisely because they lack extended-family supports (Canino & Canino, 1982). The positive correlation between social support and acculturation observed in this study further support this hypothesis. Indeed, immigrant Latinas in the study sample who have not yet been acculturated in the United States may not have had sufficient time to build relationships that offer social support. However, to completely understand this issue, researchers will need to separate the effects of interrelated variables like culture, spoken language, immigration status, and level of acculturation.

In this study, no difference occurred in mammography participation rates in relation to social support. The lack of a significant finding may be a result of the small proportion of women in the sample who reported never having had a mammogram (6%). Community-based mammography programs have suggested that “sister-to-sister” outreach might be an effective intervention to increase screening mammography participation (Earp et al., 1997; Gotay & Wilson, 1998; Navarro et al., 1998; Skinner et al., 1998).

The difference in mean social support scores between women who performed BSE regularly and those who performed it rarely was not significant, though a significant difference of almost two points existed between those who performed BSE at least rarely and those who never performed it. Explaining this relationship will require further investigation. Other studies that have reported reasons why women never perform BSE have pointed to cultural concerns for modesty and beliefs that a cause of cancer is thinking and talking about it (Facione & Giancarlo, 1998; Facione, Giancarlo, & Chan, 2000; Perez-Stable, Otero-Sabogal, Sabogal, & Napoles-Springer, 1997). In this case, a woman would be unlikely to follow screening guidelines. Perhaps the observed relationship is an indication of a networking effect that creates a group

behavior. This group behavior increases the likelihood that women will have a mammogram at least once, if not create a concern for following screening guidelines. The correlation between lack of social support and not following CBE guidelines is congruent with this hypothesis.

Study Limitations

First, the sample was recruited through leaders in community settings. Therefore, researchers can assume that the women in the sample already had established at least some relationships within their community and that the recruitment procedure probably excluded women with the lowest levels of social support. This observation also might explain the skewed distribution of social support scores, with the majority of women reporting high levels of social support, which was an unexpected finding. Second, the study used a social support scale that emphasized the extent to which basic social support is present for women, rather than a scale that emphasizes the size of the support network and its actual structure, like the Norbeck Social Support Questionnaire (Norbeck et al., 1983). Although the scale used in this study is a useful tool for assessing the presence of a basic social support network, further work is needed to examine whether the members of a support network might influence adherence to breast cancer screening guidelines. Third, although the San Francisco Bay Area has a growing population of Asian or Pacific Islander women, researchers were not able to recruit them in adequate numbers to include them in this analysis. This indicates that significant language barriers exist for many Asian or Pacific Islander women. It also might be an indication that researchers need to make considerate and culturally appropriate steps to approach this group of women. Finally, as with all studies where participants report their own cancer screening behaviors, the study is subject to limitations because women's reports of adherence to breast cancer screening guidelines may not be accurate.

Future Research

Although the design of this investigation demonstrated significant relationships between social support and cancer screening behaviors, clear explanations of exactly how social support might influence cancer screening will require further investigation. Future research needs to focus on social support in a randomized, early-detection, intervention study and to address whether certain sources or kinds of social support are more important than others in influencing breast cancer screening behavior.

Finally, future research should investigate the nature and the function of social networks of women among American racial or ethnic groups and investigate ways that social support might bolster preventive health care. Little is known about Asian or Pacific Islander women and their social support network. One study conducted with Japanese Americans reported that their

social networks provided mainly instrumental support, were small, and consisted primarily of female family members (Kawaga-Singer, Wellisch, & Durvasula, 1997). Two studies, one in Singapore primarily with Chinese women (Seow et al., 1997) and the other in Canada with women from India and Pakistan (Choudhry et al., 1998; Seow et al.), reported that social support, especially from spouses or partners, could enhance breast screening behavior. Facione et al. (2000) reported that in their sample of 45 foreign-born Chinese American women, the media was the primary source of informational support and that, among these women, discussion of breast cancer was uncommon.

Likewise, little is known about Native Americans and the way that social support is offered in their population. Reports indicate that one of the most fundamental rules in the Navajo social system is the rule of silence and that women are supposed to rely on themselves to solve their problems (Higgins & Dicharry, 1991). In contrast, a rich account of breast cancer experiences of Native American women living in Alaska stresses how social support helped in healing women with breast cancer (Colomeda, 1996).

Implications for Nursing

Although this study's findings are preliminary in nature and no predictive guidelines can be made at this point, research suggests that women who have poor support networks should be targeted for special outreach by cancer-screening programs. Nursing can play an important role by fostering sources of support, and nurses should assess women's level of social support as a factor when evaluating adherence to breast cancer screening guidelines. Research studies indicate that the decision to see a physician for cancer screening can be inhibited by family interactions, especially for women who do not have supportive partners (Facione & Giancarlo, 1998; Flores & Mata, 1995; Frank-Stromborg et al., 1998; Lannin et al., 1998; Salazar, 1996). Therefore, educational programs about the importance of screening also should target the partners of women in an effort to increase their support network.

Moreover, reports indicate that healthcare professionals do not acknowledge the importance of social networks, despite the fact that they have been shown to provide significant emotional and instrumental support to individuals (Guidry et al., 1997). Therefore, in an effort to increase the sources of social support for women that lack adequate means, nurses should be aware of and direct women toward programs in the community that offer free or low-cost screening. Finally, nurses need to support research that aims to decrease barriers within the healthcare and social systems that discourage women from attending breast cancer screening.

Author Contact: Maria C. Katapodi, RN, MS, can be reached at mkatapo@itsa.ucsf.edu, with copy to editor at rose_mary@earthlink.net.

References

- Bastani, R., Kaplan, C.P., Maxwell, A.E., Nisenbaum, R., Pearce, J., & Marcus, A.C. (1995). Initial and repeat mammography screening in a low-income, multi-ethnic population in Los Angeles. *Cancer Epidemiology, Biomarkers, and Prevention*, 4, 161-167.
- Canino, G., & Canino, I.A. (1982). Culturally syntonic family therapy for immigrant Puerto Ricans. *Hospital and Community Psychiatry*, 33, 299-303.
- Choudhry, U.K., Srivastava, R., & Fitch, M.I. (1998). Breast cancer detection practices of South Asian women: Knowledge, attitudes, and beliefs. *Oncology Nursing Forum*, 25, 1693-1701.
- Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral science*. London: Lawrence Erlbaum.
- Colomeda, L.A. (1996). *Through the northern looking glass: Breast cancer*

stories told by northern native women. New York: NLN Press.

- Deyo, R.A., Diehl, A.K., Hazuda, H., & Stern, M.P. (1985). A simple language-based acculturation scale for Mexican Americans: Validation and application to health care research. *American Journal of Public Health, 75*, 51–55.
- Earp, J.A., Viadro, C.I., Vincus, A.A., Altpeter, M., Flax, V., Mayne, L., et al. (1997). Lay health advisors: A strategy for getting the word out about breast cancer. *Health Education and Behavior, 24*, 432–451.
- Facione, N.C. (1999). Breast cancer screening in relation to access to health services. *Oncology Nursing Forum, 26*, 689–696.
- Facione, N.C., & Giancarlo, C.A. (1998). Narratives of breast symptom discovery and cancer diagnosis: Psychologic risk for advanced cancer at diagnosis. *Cancer Nursing, 21*, 430–440.
- Facione, N.C., Giancarlo, C.A., & Chan, L. (2000). Seeking help for symptoms and breast cancer risk: A Chinese American perspective. *Cancer Nursing, 23*, 258–267.
- Facione, N.C., & Katapodi, M.C. (2000). Culture as an influence on breast cancer screening and early detection. *Seminars in Oncology Nursing, 16*, 238–247.
- Facione, N.C., Miaskowski, C., Dodd, M.J., & Paul, S. (2002). The self-reported likelihood of patient delay in breast cancer: New thoughts for early detection. *Preventive Medicine, 34*(4), 397–407.
- Flax, V.L., & Earp, J.L. (1999). Counseled women's perspectives on their interactions with lay health advisors: A feasibility study. *Health Education Research, 14*, 15–24.
- Fleming, R., Baum, A., Gisriel, M.M., & Gatchel, R.I. (1982). Mediating influences of social support on stress at Three Mile Island. *Journal of Human Stress, 8*(3), 14–21.
- Flores, E.T., & Mata, A.G. (1995). Latino male attitudes and behaviors on their spouses' and partners' cancer-screening behavior: Focus group findings. *Journal of the National Cancer Institute Monographs, 18*, 87–92.
- Frank-Stromborg, M., Wassner, L.J., Nelson, M., Chilton, B., & Wholeben, B.E. (1998). A study of rural Latino women seeking cancer-detection examinations. *Journal of Cancer Education, 13*, 231–241.
- Glantz, S.A., & Slinker, B.K. (2001). *Primer of applied regression and analysis of variance*. New York: McGraw Hill.
- Gotay, C., & Wilson, M.E. (1998). Social support and cancer screening in African American, Hispanic, and Native American women. *Cancer Practice, 6*, 31–37.
- Griffith, J., & Villanencio, S. (1985). Relationships among acculturation, sociodemographic characteristics and social support in Mexican American adults. *Hispanic Journal of Behavioral Sciences, 7*(1), 75–92.
- Guidry, J.J., Aday, L.A., Zhang, D., & Winn, R.J. (1997). The role of informal and formal social support networks for patients with cancer. *Cancer Practice, 5*, 241–246.
- Higgins, P.G., & Dicharry, E.K. (1991). Measurement issues addressing social support with Navajo women. *Western Journal of Nursing Research, 13*, 242–245.
- Hoskins, C.N., Baker, S., Sherman, D., Bohlander, J., Bookbinder, M., Budin, W., et al. (1996). Social support and patterns of adjustment to breast cancer. *Scholarly Inquiry for Nursing Practice: An International Journal, 10*, 99–123.
- House, J.S., Landis, K., & Umberson, D. (1988). Social relationships and health. *Science, 241*, 540–545.
- Kawaga-Singer, M., Wellisch, D.K., & Durvasula, R. (1997). Impact of breast cancer on Asian American and Anglo American women. *Culture, Medicine and Psychiatry, 21*, 449–480.
- Komproe, I.H., Rijken, M., Ros, W.J., Winnubst, J.A., & Hart, H. (1997). Available support and received support: Different effects under stressful circumstances. *Journal of Social and Personal Relationships, 14*, 59–77.
- Lannin, D.R., Mathews, H.F., Mitchell, J., Swanson, M.S., Swanson, F.H., & Edwards, M.S. (1998). Influence of socioeconomic and cultural factors on racial differences in late-stage presentation of breast cancer. *JAMA, 279*, 1801–1807.
- Lierman, L.M., Kasprzyk, D., & Benoliel, J.Q. (1991). Understanding adherence to breast self-examination in older women. *Western Journal of Nursing Research, 13*, 46–66.
- Link, B.G., Northridge, M.E., Phelan, J.C., & Ganz, M.L. (1998). Social epidemiology and the fundamental cause concept: On the structuring of effective cancer screens by socioeconomic status. *Milbank Quarterly, 76*, 375–402.
- Lungton, J. (1997). The nature of social support as experienced by women treated for breast cancer. *Journal of Advanced Nursing, 25*, 1184–1191.
- Marin, G., Sabogal, F., Marin, B.V., Otero-Sabogal, R., & Perez-Stable, E.J. (1987). Development of a short acculturation scale for Hispanics. *Hispanic Journal of Behavioral Sciences, 9*, 183–205.
- Maunsell, E., Brisson, J., & Deschenes, L. (1995). Social support and survival among women with breast cancer. *Cancer, 78*, 631–637.
- Mickey, R.M., Durski, J., Worden, J.K., & Danigelis, N.L. (1995). Breast cancer screening and associated factors in low-income African American women. *Preventive Medicine, 24*, 467–476.
- Molinari, C., Ahern, M., & Hendryx, M. (1998). The relationship of community quality to the health of women and men. *Social Science and Medicine, 47*, 1113–1120.
- Navarro, A.M., Senn, K.L., McNicholas, L.J., Kaplan, R.M., Roppe, B., & Campo, M.C. (1998). Por la vida model intervention enhances use of cancer screening tests among Latinas. *American Journal of Preventive Medicine, 15*, 32–41.
- Norbeck, J.S., Lindsey, A.M., & Carrieri, V.L. (1983). Further development of the Norbeck social support questionnaire. *Nursing Research, 32*, 4–9.
- Northouse, L.L., Laten, D., & Reddy, P. (1995). Adjustment of women and their husbands to recurrent breast cancer. *Research in Nursing and Health, 18*, 515–524.
- Oktay, J.S. (1998). Psychosocial aspects of breast cancer. *Lippincott's Primary Care Practice, 2*, 149–159.
- Pearlman, D.N., Rakowski, W., Ehrich, B., & Clark, M.A. (1996). Breast cancer screening practices among black, Hispanic, and white women: Reassessing differences. *American Journal of Preventive Medicine, 12*, 327–337.
- Perez-Stable, E.J., Otero-Sabogal, R., Sabogal, F., & Naples-Springer, A. (1997). Pathways to early cancer detection for Latinas: En accion contra el cancer. *Health Education Quarterly, 23*(Suppl.), 41–59.
- Reppucci, N.D., Woolard, J.L., & Fried, C.S. (1999). Social, community, and preventive interventions. *Annual Reviews of Psychology, 50*, 387–418.
- Salazar, M.K. (1996). Hispanic women's beliefs about breast cancer and mammography. *Cancer Nursing, 19*, 437–446.
- Seow, A., Straughan, P.T., Ng, E.H., Emmanuel, S.C., Tan, C.H., & Lee, H.P. (1997). Factors determining acceptability of mammography in an Asian population: A study among women in Singapore. *Cancer Causes and Control, 8*, 771–779.
- Skinner, C.S., Sykes, R.K., Monsees, B.S., Andriole, D.A., Arfken, C.L., & Fisher, E.B. (1998). Learn, share, and live: Breast cancer education for older, urban minority women. *Health Education and Behavior, 25*, 60–78.
- Stewart, M.J. (1989). Social support instruments created by nurse investigators. *Nursing Research, 38*, 268–275.
- Taylor, V.M., Thompson, B., Montano, D.E., Mahloch, J., Johnson, K., & Li, S. (1998). Mammography use among women attending an inner-city clinic. *Journal of Cancer Education, 13*, 96–101.
- Triandis, H.C. (1990). Cross-cultural studies of individualism and collectivism. In J.J. Berman (Ed.), *Cross-cultural perspectives* (pp. 41–133). Lincoln, NE: University of Nebraska Press.
- Triandis, H.C. (1997). A cross-cultural perspective on social psychology. In C. McGarty & S. Haslam (Eds.), *The message of social psychology: Perspectives on mind in society* (pp. 342–354). Oxford, UK: Blackwell.
- Wagle, A., Komorita, N.I., & Lu, Z.J. (1997). Social support and breast self-examination. *Cancer Nursing, 20*, 42–48. 

For more information . . .

- ▶ Office of Minority Health
www.omhrc.gov
- ▶ National Alliance of Breast Cancer Organizations
www.nabco.org

These Web sites are provided for information only. The hosts are responsible for their own content and availability. Links can be found using ONS Online at www.ons.org.