Early Detection of Breast Cancer by Self-Examination: The Influence of Perceived Barriers and Health Conception

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Purpose/Objectives: To discover the factors that influence the decision to perform breast self-examination (BSE).

Design: Quantitative, correlational.

Setting: Institutional; urban and suburban.

Sample: A nonrandomized convenience sample of 93 women.

Methods: Willing participants were asked to complete by mail a short demographic form, the Reduced Laffrey's Health Conception Scale, Champion's Health Belief Instrument, and a BSE questionnaire.

Main Research Variables: Health conception, barriers to BSE, frequency and thoroughness of BSE practice.

Findings: A wellness conception of health and frequency were not significantly related, nor did a significant relationship exist between a wellness conception of health and thoroughness of BSE. A negative relationship between barriers and thoroughness was highly significant. A statistically significant relationship did not exist between barriers and frequency of BSE.

Conclusions: Those with a clinical conception of health practiced BSE less frequently. If health is viewed as the absence of disease, BSE may be perceived as looking for trouble. Subjects with greater barriers were less thorough when they practiced BSE. The specific barriers tested in this study (i.e., feelings about practicing BSE, worry about breast cancer, embarrassment, time, unpleasantness of procedure, lack of privacy) interfered more with the thoroughness of the behavior than with the frequency of the behavior. The most reported barrier was worry about breast cancer. The data suggest that worry may interfere with performing BSE thoroughly.

Implications for Nursing: This work offers insight into the thoughts and behavior of women to promote a behavior that could save their lives. Potential implications for nursing practice could include issues related to better education and assessment of barriers to practicing BSE in women.

Breast self-examination (BSE) is an early detection behavior that has been advocated by the American Cancer Society for approximately 25 years. Women must learn and incorporate the behavior into their healthcare routines because the earlier lumps are detected, the sooner they can be evaluated and treated. Although the behavior of BSE has been advocated for years, monthly practice rates are very low (Lierman, Young, Kasprzyk, & Benoliel, 1990; Salazar, 1994).

Key Points . . .

- The thought of a cancer diagnosis often promotes fear and anxiety.
- Worry data suggest that worry may interfere with practicing breast self-examination (BSE) in a thorough manner.
- Thoroughness of BSE practice may be improved by addressing barriers, such as worry. Nurses are in a unique position to do this.
- Women who view health as the absence of disease practice BSE less frequently.

Salazar (1994) studied 52 working women between the ages of 21–65 and reported that nearly 29% of the sample performed BSE. Lierman et al. (1990) investigated 93 women and found that 47 women (51%) performed BSE.

Motivating a woman to perform a simple, potentially lifesaving behavior remains a challenge. Barriers to BSE have been studied in relation to frequency of BSE among samples of predominately Caucasian women (Champion, 1985, 1987, 1992). Although frequency of examination is an important part of BSE, thoroughness also must be considered. What barriers are related to frequency and thoroughness of BSE practice in a racially diverse group of women? Perhaps the importance women place on taking control of their health is influenced by factors such as health conception or the women's perceptions of the meaning of health.

Breast Self-Examination Behaviors

The behavior of BSE is very different from other early detection behaviors in that it is a personal behavior that does not always depend on professionals or healthcare facilities. Regular and thorough BSE can detect smaller lumps than accidental detection of breast cancer (Susan G. Komen Breast Cancer Foundation, 2000). In addition, women are more likely to conduct accurate assessments if they learn to detect subtle differences in breast tissue and distinguish normal from questionable breast tissue.

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Women must have the will, ability, and freedom from barriers to incorporate BSE with the thoroughness and consistency required to maximize its effect. Because responsibility for BSE rests solely with those who practice it, researchers must discover the factors that influence women's decisions to perform this behavior. Potential implications for nursing practice should include issues related to education, as well as issues related to the assessment of women.

The major aims of this study were to determine whether relationships exist between women's conceptions of health and their practice of BSE and whether relationships exist among specific barriers to the practice of BSE.

Conceptual Framework

Kerr (1994) used Pender's (1987) Health Promotion Model as a framework to explain the use of hearing protection among factory workers. Health conception, which refers to individuals' perceptions of the meaning of health, was predictive in a group of Mexican American industrial workers when the dependent variable was the use of hearing protection (Kerr).

Early detection of breast cancer is different from other health-related behavior in that some women may believe that once breast cancer is detected, their survival rate is low. In fact, in the United States, the total number of deaths from breast cancer in 2002 is estimated to be more than 40,000 (Jemal, Thomas, Murray, & Thun, 2002). Salazar (1994) suggested that education programs must focus on the need for early detection as it relates to survival to motivate women to practice BSE regularly.

Although opinions conflict regarding the value of BSE (Gehrke, 2000; Nekhlyudov & Fletcher, 2001), the American Cancer Society (ACS) continues to support the inclusion of BSE as an early detection behavior (ACS, 2002). Mammography and breast examination by healthcare professionals also are recommended highly; however, BSE is an additional behavior women can choose to perform (Gehrke).

Pender's (1996) Health Promotion Model provided the conceptual framework for the current study. The model has its roots in an earlier model, the Health Belief Model, developed in the 1950s to explain health behavior (Rosenstock, 1974). The primary focus of the Health Belief Model is disease prevention.

The emphasis of Pender's (1996) Health Promotion Model is broad and focuses primarily on health promotion. According to Pender (1996), health promotion is motivated by the desire to increase well-being, whereas health protection is motivated by a desire to avoid illness, detect it early, or live fully within the constraints of illness.

Health promotion emphasizes self-actualization and functioning at the highest level, whereas health protection focuses on disease avoidance, protecting the body against unnecessary stressors, or detection of illness at an early stage; therefore, health protection was the focus of the current study. Pender (1996) stated that, in reality, motivation for many health behaviors rests with the desire to approach a positive state (i.e., health promotion) and avoid a negative state (i.e., health protection).

Pender (1996) hypothesized that individuals' definitions of health may influence the extent and likelihood that they engage in health-related behaviors. Viewing health as adaptation, balance, or stability could predispose individuals toward health-related behavior directed at promoting wellness (Pender, 1987). Regarding individuals' definitions of health, the clinical model of health emphasizes the presence or absence of disease, whereas the wellness model of health emphasizes exuberant well-being.

Empirical support for health conception as a predictor of a health-promoting lifestyle exists in the literature. Pender, Walker, Sechrist, and Frank-Stromborg (1990) reported that individuals who define health as the presence of wellness were more likely to engage in health-promoting behaviors. Frank-Stromborg, Pender, Walker, and Sechrist (1990) indicated that health conception was predictive of a health-promoting lifestyle in a sample of ambulatory patients with cancer. Frauman and Nettles-Carlson (1991) indicated that when health is defined as exuberant well-being, people have a greater tendency to pursue a health-promoting lifestyle. Considering the results of these studies, the way that health is viewed may correspond to health behaviors such as BSE.

Literature Review

Pender et al. (1990) studied 589 employees enrolled in employer-sponsored health programs. The majority of the sample (83%) was Caucasian; 10% were African American, 5% were Hispanic, and 2% were Asian. The concepts of perceived competence, health status, and control of health and definition of health accounted for 27% of the variance in a health-promoting lifestyle. Employees who reported a more health-promoting lifestyle perceived themselves as competent in life situations, defined health as high-level wellness rather than the absence of disease, evaluated their health positively, and perceived health to be influenced by significant others rather than other external forces (Pender et al.).

Frank-Stromborg et al. (1990) studied 385 ambulatory patients with cancer undergoing treatment in the midwestern United States. Of the 385 subjects, 223 (58%) were female. Their ages ranged from 21–85, with a mean of 53.7 years. The majority were married (277 or 78%) and Caucasian (375 or 97%). Multiple regression analyses revealed that 24% of the variance in a health-promoting lifestyle was explained by the variables of definition of health, perceived health status and control of health, education, income, age, and employment. Ambulatory patients with cancer in outpatient chemotherapy or radiation centers were more likely to report a healthy lifestyle if they held a wellness-oriented conception of health, rated their personal health status as high, believed that they controlled their health, were more well-educated, were older, had higher income, and were not employed outside the home (Frank-Stromborg et al.).

Fraumen and Nettles-Carlson (1991) sampled 130 healthy adults in a primary-care clinic who were seeking health services from a nurse practitioner. Their mean age was 39.7 years, and 67% were Caucasian. Data were collected by a mailed survey. Using multiple regression, the definitions of health, importance of health, health locus of control, age, gender, marital status, race, education, income, and residence were studied in relation to health-promoting behavior. Predictors of a health-promoting lifestyle were a conception of health as exuberant well-being and college education.

Although these studies obtained their samples from healthcare service settings and the subjects may have been more health-focused as a result of the sample selection process, the results indicate a relationship exists between individuals' health conception and health-promoting lifestyle.

Barriers

According to Pender (1996), the concepts of health conception and perceived barriers directly and indirectly influence the maintenance of health behaviors. Barriers are blocks, hurdles, and personal costs of undertaking a given behavior (Pender, 1996). Although barriers have been studied in relation to frequency of BSE among samples of predominantly Caucasian women, research must determine what barriers are related to the thorough monthly practice of BSE in more diverse samples.

Champion (1992) studied variables related to BSE in 322 women from three age groups: ages 35–44, 45–54, and 55 and older. In the 55 and older age group, barriers was the only significant variable and accounted for 30% of the variance ($p \leq 0.001$). Confidence and barriers were the only significant predictors for women between the ages of 45–54, accounting for 37% of the variance ($p \leq 0.000$). In the group aged 35–44, knowledge susceptibiliy, barriers, confidence, and seriousness accounted for 32% of the variance and all were significant ($p \leq 0.000$).

Champion (1985) studied 301 female volunteers, the majority of whom were Caucasian, married, Protestant, and high school graduates. Their ages ranged from 17–82 years. Stepwise multiple regression tested the combined constructs of susceptibility, seriousness, benefits, barriers, and health motivation on BSE. The results of the regression analysis indicated that this combination of variables described frequency of BSE at a significant level ($p < 0.01$). When examining each construct individually, barriers accounted for 23% of the variance. Women with few barriers reported increased frequency of BSE (Champion, 1985).

In 1987, Champion examined the relationships between BSE frequency and susceptibility, seriousness, benefits, barriers, health motivation, control, and knowledge. The sample consisted of 585 women, whose mean age was 33. The majority was Caucasian (85%) and the remainder was African American, Asian, or Native American. The combination of variables correlated significantly with frequency of BSE when a stepwise multiple regression provided a significant multiple R of 0.53 ($p < 0.001$) (Champion, 1987). The current study sought to examine the relationships among health conception, perceived barriers, and BSE practice, in the hope that these elements would offer further information related to the factors that influence women's decisions to practice BSE.

Methods

Design

A correlational design was used to examine the relationships among the types of health conception, barriers, and frequency and thoroughness of BSE. Willing participants completed questionnaires regarding the frequency and thoroughness of BSE and returned the questionnaires by mail to the researcher.

Sample

A nonrandomized, convenience sample of 93 participants was drawn from employees of two urban New Jersey hospitals to which the researcher had access. A diverse sample was obtained from the housekeeping, dietary, payroll, and secretarial departments. The sample was limited to women aged 18 or older who could speak and read English. Because the incidence of breast cancer increases with age, no upper age limit was set for the sample. Women who had been diagnosed and treated for breast cancer were not included. Although BSE is important for women who have had breast cancer, these women may practice BSE more frequently because they may have more frequent reminders from their healthcare providers.

Instruments

The **Reduced Laffrey Health Conception Scale** evolved from the Laffrey (1986) Health Conception Scale (LHCS), which was developed in 1983 to measure individuals' personal perceptions or meaning of health. The earlier form of the measure was comprised of the following four subscales: clinical (i.e., absence of disease or symptoms), role performance/functional (i.e., ability to function as expected according to the roles held by the individual), adaptive (i.e., ability to function efficiently and adapt to the environment and its stressors), and eudiamonistic (i.e., ability to achieve the highest potentials and self-realization). In the latest form of the instrument, the clinical subscale was retained and the other three models were replaced by a wellness subscale developed by Pender et al. (1990). The authors found high intercorrelations (ranging from 0.66–0.76) among the role performance, adaptive, and eudiamonistic subscales of the LHCS. These three subscales were combined to form a "wellness" subscale.

The Reduced LHCS measures two dimensions using a 16-item Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). A score for each dimension is obtained by summing that dimension's item scores. A total score is obtained by summing the dimension scores. A high score for a clinical or wellness conception indicated a high importance of this conception in individuals' health definitions.

To measure perceived negative components of BSE behavior (e.g., blocks, hurdles, personal costs), the six-item barriers subscale of the BSE-related **Health Belief Model Scales** was used (Champion, 1984). The items were (a) I feel funny about practicing BSE, (b) practicing BSE will make me worry about cancer, (c) BSE will be embarrassing, (d) practicing BSE will take too much time, (e) practicing BSE will be unpleasant, and (f) I don't have enough privacy to practice BSE. The latest version measures barriers to BSE with a five-point Likert scale ranging from strongly agree to strongly disagree. Estimation for construct validity using exploratory factor analysis indicated that all barrier items but one calculated above 0.45. The barrier item "It is hard to remember to practice BSE" correlated lower than 0.45 and was deleted (Champion, 1993). Internal consistency reliability for the barriers subscale was 0.88. Test-retest reliability for the barriers subscale was 0.65 ($n = 151$) (Champion, 1993).

To determine BSE frequency, one question asked how often participants practiced BSE during the past six months. The other 14 items related to the quality of the BSE. Lashley's (1987) 14-item **BSE thoroughness checklist** was used to address BSE technique. This checklist was designed following the guidelines available at that time published by ACS (1978) and the National Cancer Institute (1981) for BSE. Although the BSE procedure itself has not changed dramatically over many years, currently circular, downline, or wedge patterns of examination are acceptable methods. Current ACS recommendations for BSE frequency are monthly practice beginning at age 20 (ACS, 2002).

Content validity was addressed on the Lashley (1987) instrument by submitting the instrument to three master's-level nursing students enrolled in a practitioner program. All of the nurses had experience teaching BSE. The reviewers agreed that the instrument was thorough and the wording was clear.

Test-retest reliability was conducted on a sample of 18 graduate nursing students between the ages of 24–47 (Lashley, 1987). A reliability coefficient of 0.85 was obtained. The alpha reliability on the total scale was 0.77 (n = 105) (Lashley).

BSE practice was assessed by asking participants to report the frequency of BSE performance. Thoroughness was evaluated by a written checklist consisting of 14 steps that were scored as being done (1) or not done (0). The highest possible score was 14.

Data Analysis

Descriptive statistics were computed for all variables involved in the study, including means, standard deviations, ranges, and skewness. The distributions were examined for outliers and departure from normality. Zero-order correlations were computed among all variables. Correlation analyses included demographic variables to determine their relationship to BSE practice.

To examine the research questions relating barriers and health conceptions to the practice of BSE, two multiple regression analyses were conducted for the criteria variables (i.e., frequency and thoroughness of BSE). The predictor variables were barriers and health conceptions, which were entered simultaneously. Semipartial correlations indicating unique contribution of each predictor were calculated. All significance tests were set at the 0.05 level.

Results

Sample

All participants (N = 93) responded to the scales for barriers, health conception, frequency, and thoroughness. Among the 93 completed questionnaires, three were omitted from the analyses because the subjects did not meet the criteria for inclusion (e.g., a personal history of breast cancer was reported). Participants' ages ranged from 21–63 years with a mean of 41 years, a mode of 45, and a standard deviation of 10 (see Table 1). Fifty-eight (n = 52) percent of the women were married, 26% (n = 23) were single, 11% (n = 10) were divorced or separated, and 6% (n = 5) were widowed.

The sample was racially diverse with a non-Caucasian population of 59%. Specifically, African Americans represented 26% (n = 23), Asians 19% (n = 17), Hispanics 11% (n = 10), others 3% (n = 3); 41% (n = 37) were Caucasian. Protestant women represented 8% (n = 7) of the sample, Catholic 60% (n = 54), Jewish 3% (n = 3), and other 29% (n = 26).

Educational level varied; 1% (n = 1) reported an eighth grade education, 6% (n = 5) completed some high school, 10% (n = 9) completed an associate degree, 27% (n = 24) completed a bachelor degree, and 21% (n = 19) completed graduate or professional degrees.

Pearson correlations were performed on variables from the Personal Information Form. Educational level was moderately positively correlated with family income ($r = 0.54$, $p < 0.01$). As expected, because some type of surgery is required to determine whether a mass is malignant or benign, those with a history of benign mass had more surgery ($r = 0.66$, $p < 0.001$). Those reporting more surgery had more barriers to BSE ($r = 0.24$, $p < 0.05$). Because the chance of breast cancer increases with age, age also was significant with respect to the number of friends known with breast cancer ($r = 0.37$, $p < 0.001$). From this study, it appears that the older women are, the more friends or relatives they know who have had breast cancer.

Table 1. Sample Characteristics

Age	n	%
21–35	27	30.0
36–49	41	45.6
50 and older	22	24.4

N = 90

The current study also demonstrated this; those who were evaluated on their BSE performance at the time of teaching had higher thoroughness scores ($r = 0.23$, $p < 0.05$). The findings of the current study also revealed that willing participants with higher levels of education were more thorough in their examination ($r = 0.23$, $p < 0.05$).

Main Variables

Descriptive statistics for health conception, barriers, and frequency are presented in Table 2. The barriers concept was measured with six items. Seventy-four percent (n = 67) of the women reported that they disagreed or strongly disagreed with the statement, "I feel funny about practicing BSE." Sixty-one percent (n = 55) reported that they disagreed or strongly disagreed with the statement, "Practicing BSE during the next year will make me worry about breast cancer." Eighty-eight percent (n = 79) reported that they disagreed or strongly disagreed with the statement, "BSE will be embarrassing to me." Eighty-seven percent (n = 78) disagreed or strongly disagreed with the statement, "Practicing BSE will take too much time." Eighty-one percent (n = 73) disagreed or strongly disagreed with the statement, "Practicing BSE will be unpleasant." Eighty-four percent (n = 76) disagreed or strongly disagreed with the statement, "I don't have enough privacy to practice BSE."

Thoroughness was measured with 14 items describing techniques of BSE, including positioning and comprehensiveness. The mean thoroughness score was 9.8, with a range of 1–14 and a standard deviation of 3.28. The thoroughness items that were identified as being performed least were lying down and placing the hand above the head before examining the breast and looking at breasts with hands on hips.

Conception of Health

A multiple regression analysis was calculated with health conception and barriers as the independent variable and frequency as the dependent variable. The predictors were entered simultaneously because no theoretical rationale existed for the order of entry. The adjusted R^2 value for this analysis was 0.013, indicating that only approximately 1% of the variance in frequency is explained by barriers, clinical conception of health, or a wellness conception ($F[3,86] = 1.378$, $p = 0.26$).

A wellness conception of health and frequency were not significantly related ($p = 0.38$). However, a significant ($p < 0.05$) negative relationship existed between a clinical

Table 2. Descriptive Statistics for Health Conception, Barriers, and Frequency

Variable	Minimum	Maximum	$\bar{X}$	SD	Skew
Health conception—clinical	18	48	35.88	8.08	–0.148
Health conception—wellness	23	48	38.94	5.90	–0.359
Total barriers	6	30	11.44	5.74	1.445
Barrier 1	1	5	1.97	1.24	1.185
Barrier 2	1	5	2.39	1.39	0.615
Barrier 3	1	5	1.64	1.09	2.066
Barrier 4	1	5	1.81	1.04	1.646
Barrier 5	1	5	1.90	1.20	1.405
Barrier 6	1	5	1.73	1.17	1.802
Frequency of breast self-examination over past six months	0	182	6.42	20.09	7.901

N = 90

conception of health and frequency, meaning that those with a clinical conception of health practiced less frequently.

Barriers

A second multiple regression analysis was performed with barriers and health conception as the independent variable and thoroughness as the dependent variable. The adjusted R^2 value for this analysis was 0.067, indicating that approximately 7% of the variance in thoroughness is explained by health conception and barriers, a statistically significant amount ($F[3,86] = 3.125$, $p = 0.03$). The relationship between clinical conception of health was not statistically significant in relation to thoroughness, nor did a significant relationship exist between a wellness conception of health and thoroughness ($p < 0.52$).

The negative relationship between barriers and thoroughness was highly significant ($p = 0.004$). No statistically significant relationship existed between barriers and frequency. Finally, a regression analysis was performed with race, age, income, and barriers. The only significant relationship was barriers and thoroughness ($p < 0.014$), which confirms the earlier analysis.

Discussion

The frequency distribution of demographic characteristics of the women in this sample differs from that of the majority of studies on this subject. This sample contained a racially diverse group of willing participants with a non-Caucasian population of 59%. The sample contained proportionally more non-Caucasian, married, Catholic women. The majority had an associate's degree or less.

The finding of a significant negative relationship between a clinical conception of health and frequency was interesting. BSE may be a unique behavior, quite different from other early detection behaviors because it requires consistent commitment on the part of the subject. Taking personal responsibility to actually practice early detection behavior on a monthly basis makes BSE different from other early detection behaviors, such as cervical cancer screening. These behaviors require a healthcare professional and are not monthly behaviors.

According to Pender (1996), sources of motivation for health behavior may be primarily health-promoting or health-protecting in nature or motives may be mixed. BSE can be considered a unique health-protecting behavior because it involves personal commitment similar to the health-promoting behaviors of good nutrition and exercise. A wellness health conception consistently was related to a health-promoting lifestyle in numerous studies (Bouchard, 1992; Frank-Stromborg et al., 1990; Frauman & Nettles-Carlson, 1991; Pender et al., 1990). Also, a clinical conception of health was positively related to the use of hearing protection in a sample of Mexican American laborers (Kerr, 1994). In the current study, the reasons for the negative relationship between clinical conception of health and BSE frequency have yet to be explored. Perhaps the complexity of the behavior is key. In addition, a significant relationship did not exist between clinical conception of health and thoroughness. Another reason for this finding could be that this sample of minority women did not find the items listed in the barriers instrument to be obstacles to them. Perhaps a qualitative exploration of barriers is indicated with a similar sample.

The negative relationship between barriers and thoroughness was highly significant. This indicates that subjects with greater barriers were less thorough when they practiced BSE. This result supports the Health Promotion Model (Pender, 1996). The specific barriers tested in this study interfered more with the thoroughness of the behavior than with the frequency of the behavior. The most reported barrier was worry about breast cancer, and barriers were negatively related to thoroughness. Therefore, the data in this study suggest that worry and anxiety may interfere with practicing BSE in a thorough manner.

A statistically significant relationship did not exist between barriers and frequency of BSE. This result was unexpected because previous studies with samples of predominately Caucasian, middle-class women indicated that greater barriers predicted less frequency of examination (Champion, 1985, 1992; Trotta, 1980; Wyper, 1990). These differences might be a function of the sample's characteristics. The outstanding difference between the current study and the studies of Champion (1985, 1987, 1992), Trotta, and Wyper is the minority sample in the current study.

In the current study, the linear correlation for level of education and thoroughness was significant. This is consistent with Frank-Stromborg et al. (1990), who found that patients who were more educated and had higher incomes were more likely to report a healthy lifestyle.

Limitations

A larger sample with larger numbers of willing participants in each of the minority groups would allow for more tests to

study the interaction of variables, such as race by BSE practice or other variables that were not statistically significant. Results may confirm the existing findings or explain why they differ from the literature. The use of several other sites might help to increase the number of participants from each minority group so that meaningful comparisons could be made across groups.

Larger numbers of willing participants in each age group would allow the exploration of possible generational differences in BSE practice. An increase in numbers of willing participants from each educational or income level would allow comparisons across socioeconomic levels.

Individually, the scales used in this study were tested for validity and reliability and were placed into one package. This may have been distracting because the response structure varied. For example, the Reduced LHCS used an even-numbered Likert scale format that ranged from 1–6, with 1 being strongly disagree and 6 being strongly agree. The barriers subscale of the Health Belief Model Scales, however, used an odd-numbered Likert scale that ranged from 5–1, with 5 being strongly disagree and 1 being strongly agree and allowed for the respondent to select a neutral response. Neutral responses were not an option in the Reduced LHCS. Consistency in the response pattern may present less difficulty for participants.

The study results indicated that women do not perform BSE in a thorough manner. In addition, the study demonstrated that the more barriers a woman identifies, the less thorough the BSE. Thoroughness possibly could be improved by addressing issues such as barriers. Further study is indicated in this area. Simply reviewing the steps of BSE routinely with women during health visits may increase awareness of the steps and improve BSE thoroughness, especially if emphasizing those procedures most likely to be omitted.

Recommendations for Future Research

An unusual finding for this study was the negative relationship between clinical conception of health and BSE frequency. Reasons for this unexpected relationship may be tied into the complexity of BSE behavior. A clinical conception of health is a simpler way of viewing health when compared to a wellness conception of health. Perhaps women who embrace a clinical concept would benefit from more instruction on BSE and its relationship to better health to increase frequency of examination. Further study is indicated.

The barriers concept was not significant in relation to BSE frequency. A study exploring why the expected relationship was not found may be useful. Perhaps a population from diverse settings would respond differently.

Anxiety emerged as the most frequently reported barrier to BSE practice. This reported worry about breast cancer should be explored in future studies, as well as a means to reduce it. Researchers should look directly at anxiety and BSE thoroughness because a significant relationship existed between barriers and thoroughness; that is, the more barriers the women reported, the less thoroughly they practice BSE. This may indicate that the more anxious the women were (i.e., decreased ability to focus or concentrate), the less thorough the BSE would be. This also may indicate that by reducing worry, women could perform more thorough examinations. Nurses could reduce worry about breast cancer by teaching their female patients about the benefits of early detection of breast cancer. A study comparing BSE thoroughness among women who have been taught the benefits of early detection and women who have not been taught the benefits of early detection is indicated.

If worry and anxiety interfere with thoroughness of BSE, anxious women may lack the concentration necessary to practice BSE with mastery. Nurses can help patients by teaching relaxation techniques that can be used immediately before practicing BSE. A study comparing thoroughness of BSE between women who use relaxation techniques and those who do not may justify the use of these techniques to improve BSE thoroughness.

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For more information . . .

- Breast Cancer Network
  www.breastcancer.net
- HealthTalk Interactive: Breast Cancer Education Network
  www.healthtalk.com/bcen
- Breast Cancer Answers
  www.canceranswers.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.