

CHARACTERISTICS OF RURAL WOMEN WHO ATTENDED A FREE BREAST HEALTH PROGRAM

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ABSTRACT

Rural women are particularly at risk of dying from breast cancer, because they do not take advantage of screening procedures that are readily available to their urban counterparts. The purpose of this non-experimental study was to explore characteristics of rural women who attended a free breast health program that included self breast examination education and free mammography. The organizing conceptual framework was the Precede/Proceed Model. Five hundred and seventy-five women who lived in four rural Midwestern counties participated by completing a questionnaire. Results revealed predisposing factors included knowledge of and desire for breast health behaviors, enabling factors included lack of resources to pay such as insurance and adequate income, and reinforcing factors included physician recommendation and self reassurance. Data support the need for a continued focus on breast health programs in rural communities. Recommendations for future studies include hypothesis development and intervention strategies that strengthen breast health in rural women.

INTRODUCTION

The factors that affect breast health behaviors of rural women are largely unknown. Two advanced practice nurses, whose practice focus is rural women and health promotion behaviors, examined data to identify characteristics of rural women who attended a free breast health program. Consideration of these characteristics according to the Precede/Proceed Model may lead to targeted intervention to improve breast health behaviors. Breast cancer is the second leading cause of cancer death in the U.S. and the most commonly diagnosed malignancy in women. Over 80% of breast cancer cases can be cured if cancer is diagnosed and treated in its early stages (ACS, 2004; White, E., Urban, N., & Taylor, V., 1993). Maximizing the percentage of women who overcome this disease is currently dependent on routine, regular breast screening. The American Cancer Society predicts in 2004 greater than 40,000 women will die from breast cancer and nearly 216,000 new cases of breast cancer will be diagnosed. Mammography has been found as the best way to detect breast cancer in its earliest stage – on an average 1-3 years before a woman feels a lump in the breast self-exam. It also isolates tumors too small to be felt during clinical breast exam. Dr. Hugh Hawkins (2001) reported that mammography has decreased breast cancer mortality by 30-45%. Rural women are particularly at risk of dying from breast cancer, because they often do not take advantage of screening procedures that are readily available to their urban counterparts. A well-

developed body of knowledge regarding barriers to breast cancer screening for urban women is present in the literature (Miller, A. & Champion, V., 1993; Miller, A. & Champion, V., 1996; Zapka, J., Stoddard, A., Costanza, M., & Green, H., 1989; Zapka, J., Chasan, L., Barth, R., Mas, E., & Costanza, 1992; Danigelis et al. 1995; and Kim, Y. & Sarna, L., 2004). Although a number of studies have focused on rural women (Love et al. 1993; Earp et al. 2002; Valdini, A. & Cargill, L., 1997; and Andersen, M., Hager, M., Celina, S., & Urban, N., 2002), the factors that affect breast cancer screening are unknown for rural women who lack access to publicly funded clinics, lack access to diagnostic facilities and/or who lack the ability to pay.

LITERATURE REVIEW

Healthy People 2010 identified Access to Quality Health Services (Objective 1), Cancer (Objective 3), and Educational and Community-Based Programs (Objective 7) as focus areas. Healthy People 2010 also outlined several strong predictors of access to quality health care: having health insurance, a higher income level, and a regular primary care provider. A key indicator related to access to quality health care has been found to be the use of preventive services. The report further identified barriers to access as financial (no insurance, inadequate insurance), structural (lack of providers and/or facilities), and personal (language, not knowing when or what to do, cultural or spiritual differences, or concerns about discrimination or confidentiality). Reasons that prevent rural women from seeking breast cancer screening behaviors may extend beyond access alone. Zhang, Tao, and Irwin (1993) found that differences did exist between rural and urban women in their use of preventive services, particularly mammography.

Calle, Flanders, Thun, and Martin (1993) analyzed responses from 12,252 women who participated in the 1987 National Health Interview Survey Cancer Control Supplement and reported that the most underserved profile was rural women at 200% of poverty and aged 40 to 49. For this group of women greater than 85% had never had a mammogram. Although national rates for women receiving mammograms within the previous 2 years are 84.6%, the rates for all rural poor are now estimated at 50% (CDC, 2000). These rates are reinforced by the Health and Human Services report that more than 20 million rural residents in America have inadequate access to healthcare (2001 Fact Sheet). The Employee Benefit Research Institute reported that the number of uninsured Americans continues to grow with current estimates in excess of 42 million non-elderly (2000). The percent of uninsured and underinsured rural Americans is at 24% compared to urban Americans at 18% (Brand, 2004). Hafner-Eaton (1993) reported that uninsured adults underwent fewer screening services for cancer and Himmelstein and Woolhandler (1995) found that uninsured adults present with later-stage diagnoses of cancer due to lack of early screening. In 2003, the lowest mammogram prevalence percentage was women with no health insurance at 34%, followed by women with less than a high school education at 49% (CDC, 2003). Reports from the CDC in 2003 continue to support the findings of the early 1990's: screening of the uninsured remains a healthcare issue.

Theoretical Framework

The Precede/Proceed Model, designed by Green and Kreuter, served as the conceptual framework (Green & Kreuter, 1991). The framework is useful for grouping the factors likely to be used to bring about the desired program outcomes. The three broad groupings are predisposing factors, enabling factors, and reinforcing factors. Predisposing factors include personal attributes such as a person's knowledge, attitudes, beliefs, values, and perceptions that can promote or hinder motivation for change. Enabling factors are those skills, resources, and/or barriers that promote or hinder the desired change. Enabling factors are mainly societal forces or systems. Oftentimes enabling factors include availability of personal and community resources, accessibility, referrals, laws or statutes, personal skills, services, and facilities. Reinforcing factors are the behaviors and attitudes or those around the person such as the rewards and incentives received or the feedback that is received from peers, parents, family, employers, social group, etc. for adopting the desired outcome.

The goals of the Precede/Proceed Model are to explain health-related behaviors and provide a foundation for developing and testing interventions to influence both behaviors and environmental conditions affecting the behaviors. The Precede component of the model is the diagnostic phase that is useful for identifying the predisposing, enabling, and reinforcing constructs associated with the phenomenon and the Proceed component is the development phase outlining the policy, regulatory, and organizational constructs. The Precede framework directs attention to what must precede the desired outcome, in this case, a woman getting a mammogram. In order to determine what causes the desired outcome, the factors important to that outcome must be diagnosed before intervention strategies can be designed. Without an adequate diagnosis of the important factors, the investigator runs the risk of designing ineffective intervention strategies.

Two fundamental propositions are emphasized in the Precede/Proceed Model. Those are that health and health risks are caused by multiple factors and that, because of this proposition, efforts to effect behavioral, environmental and social change must be multidimensional or multisectoral. The Precede component of this model is useful as a framework for this preliminary study because it will provide direction and focus for future investigation of the factors that affect the ability of rural women to adopt breast health behaviors.

Studies using the Precede/Proceed Model or component parts reported in the literature have primarily focused on urban samples (Zapka et al. 1989; Zapka et al. 1992; Earp et al. 1995; Danigelis et al. 1995; Love et al. 1993; and Miller, A. & Champion, V., 1993). In each of these studies, the researchers identified key factors in each Precede/Proceed category, e.g. predisposing, enabling, and reinforcing. Significant predisposing factors included having knowledge about breast cancer screening and family history of breast disease. The key enabling factors were summarized as having the resources to pay for the screening and having a physician provider. Lastly, having a physician recommend breast cancer screening was identified as the most commonly occurring reinforcing factor.

Studies of Non-Metropolitan or Rural Women Seeking Breast Cancer Screening

Even though the review of the literature revealed that the majority of researchers choose to investigate urban samples, several studies focused on non-metropolitan samples. Studies by Love et al. (1993), Earp et al. 2002, Valdini and Cargill (1997) and Andersen et al. (2002) included respondents from non-metropolitan as well as rural sites. Love et al. did not distinguish rural as a component of non-metropolitan in identifying predictors of obtaining mammography. Although Earp et al. 2002 chose a rural sample, the study focus was identification of interventions that increased mammography use among rural African American women rather than identification of factors that affected rural African American women seeking mammography. Valdini and Cargill (1997) investigated factors affecting access and barriers to mammography in New England Community Health Centers. Common reasons identified for not having mammograms were that the patient thought that the 'test was not important' (35%) and, secondly, the expense and lack of insurance (23%).

Overall Summary of Review of Literature

The review of the literature revealed that many of the classic studies are more than ten years old. The reported characteristics of this population may have shifted significantly over the past ten years. However, a review of the literature reveals that screening behaviors of the uninsured remain relatively unchanged between 1993 and 2003. Further, based on the literature reviewed, a gap in information about underserved rural women and their behaviors related to breast cancer screening, mammography or breast health in general is apparent. Many studies have focused on the urban woman and several have used the Precede/Proceed model as the theoretical framework. Data pertinent to factors that affect access of specifically underserved, rural women to breast cancer screening were not available. Knowledge of the characteristics of this population is critical as a foundation for determining the factors related to their breast health behaviors. Once these characteristics are known, factors can be investigated and then interventions can be developed to increase the likelihood of early detection and, hopefully, cure.

STUDY PURPOSE AND RESEARCH QUESTION

The purpose of this non-experimental study was to explore characteristics of rural women who attended a free breast health program that focused on education and screening. Through descriptive design the researchers were able to describe characteristics of this group of rural women. The research question was 'what are the characteristics of rural women who self-selected to attend a free breast health program which included self breast examination education and mammography?'

METHODS

Operational Definitions

1. Breast Health (BH): The act of caring for the health of one's breast by observing the American Cancer Society's guidelines for breast cancer screening which include baseline mammography after age 35, yearly mammograms starting at age 40, clinical breast exams every three years for women between 20 and 40 and then every year after age 40, reporting any changes in the breasts to health care providers found through self breast exam which is an option for any women over age 20 (ACS, 2002).
2. Rural County: A county with a population less than 50,000 (Fritz, 2003).
3. Medically Underserved County: Medically underserved area (MUA) as designated by U.S. Department of Health and Human Services and reflect assessment of available healthcare resources.
4. Screening Mammogram: A x-ray examination of the breasts in a woman who has no breast complaints or symptoms (asymptomatic).
5. Predisposing Factors: Personal attributes such as a person's knowledge, attitudes, beliefs, values, and perceptions that can promote or hinder motivation for BH behavior.
6. Enabling Factors: Skills, resources, and/or barriers that promote or hinder BH behavior, including availability of personal and community resources, accessibility, referrals, laws or statutes, personal skills, services, and facilities.
7. Reinforcing Factors: Behaviors and attitudes such as the rewards and incentives received or feedback that is received from peers, parents, family, employers, social group, etc. for adopting BH behavior.

Sample

The target population for this study consisted of women age 35 years and older, who spoke and understood English, lived in one of four rural, medically underserved counties in the Midwest and were appropriate for screening mammography. Age recommendations for screening mammography were based on American Cancer Society Guidelines (2002). Additional guidelines for screening mammography were based on the criteria of the contracted mobile van and included: no breast discharge or pain, no new lumps or dimpling, no biopsy since last mammogram, no current pregnancy or breast feeding, and no breast augmentation. Only screening mammography was provided on the mobile unit. The sampling frame included a convenience sample of 575 women who self-selected to attend one of the free breast health programs offered in this region between March 2001 and October 2003. According to the 2000 census, the total population for this target region was 20,428. The minority population was less than 4% of the total counties' population.

Survey Instrument

The researchers reviewed the literature and were unable to locate an instrument that met the specific survey needs of being completed in less than 15 minutes and including characteristics reflective of a rural population. Based upon the literature and the experience of the researchers, the research team developed a survey to elicit information related to characteristics of rural women seeking mammography. The survey consisted of a 46-item self-administered questionnaire comprised of fixed choice and open-ended questions regarding respondents' demographic and breast health behaviors. The focus of sixteen items was on predisposing factors, ten items on enabling factors, and six items were reflective of reinforcing factors. Examples of survey items are displayed in Table 1. Face and content validity of the survey was assessed by a panel of experts consisting of a mobile mammography unit director, registered nurse practicing in a breast center, local public health nurse, and researcher with expertise in breast health. The survey was reviewed to ensure that it was accurate and reflective of the rural population. Based upon feedback, revisions were made to the final survey.

Table 1
Sample Client Survey Items

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1. What is/are the biggest reason(s) you decided to come for a mammogram today?
(check one or more)
 - Doctor recommended
 - Nurse recommended
 - Other people (family friends) encouraged it
 - The van was close by
 - My children told me to
 - Found a lump or other symptom
 - Have a history of breast problems
 - No cost
 - At risk of breast cancer because of age
 - At risk of breast cancer because of family history
 - Reassure myself I don't have breast cancer
 - Afraid of getting breast cancer
 2. Do you believe you are at risk for breast cancer?
 YES NO
 3. What kind of health insurance do you have?
 None
 Private Insurance
 Medicare
 Medicaid
 Don't know
 4. Does your insurance pay for mammograms?
 YES NO

Procedure

In 2001 the research team received initial funding for a breast health project. The project focused on 1) teaching self-breast examination and providing free mammograms to women in four medically underserved rural counties and 2) identifying characteristics of this population using a descriptive research design. The researchers recognized that the American Cancer Society recommends a three-prong approach for optimal breast cancer screening: annual mammography, clinical breast exam, and self-breast exam. Due to funding, delivery of services, and facility limitations, clinical breast examination was not included as a component of this project. For each subsequent cycle, the program was submitted to the Institutional Review Board at the university employing the researchers for human subject review. Funding to support these programs was obtained by a combination of state, regional, and private grants from the Indiana Women's Commission, the Greater Cincinnati Affiliate of the Susan G. Komen Foundation, the Health Foundation of Greater Cincinnati, and the Ripley County Community Foundation.

The convenience sample was obtained by advertising in the local county newspapers and church bulletins and by posting flyers on bulletin boards throughout the communities. Survey data were collected using pencil and paper. The procedure for participation was initiated when a woman responded to local publicity and called the local health department to schedule an appointment. The health department screened the women for participation according to the project inclusion criteria. When a woman arrived at the site for the program, she was offered a 46-item survey to voluntarily complete. Assistance was provided if the women needed help with reading or writing. The women were informed that all data collected would be reported in aggregate and that no identifying information would be revealed. The completed survey constituted the woman's consent to participate in the study. After completing the survey, each woman watched an 8-minute film on self-breast examination, demonstrated ability to perform self-breast examination on a model, received educational materials related to breast health, and received a breast cancer awareness pin. A team of registered nurses specifically trained in the breast health content presented the educational program using materials developed by the American Cancer Society.

Qualifying participants then received a free mammogram on the mobile mammography unit parked at the program site. The timeframe for program participation was less than 45-minutes which included survey completion, educational programming, and mammography.

Data Analysis

Following data collection, data were entered on a SPSS (SPSS Inc., Chicago, IL) data file for analysis. Descriptive statistics were used to analyze the data obtained.

RESULTS

Demographics

The participant response to program publicity was very positive. Forty-six percent of the participants reported that they learned of the program through an ad placed in the local newspaper. All appointments in all locations were filled with a 'no show' rate of less than five percent. Since appointment waiting lists were compiled, women on the waiting lists were called in the event of a 'no-show' or cancellation. Five hundred and seventy five rural women attended one of seventeen educational programs and received free mammograms on a mobile mammography unit between March 2001 and October 2003. Five hundred and sixty four completed the survey. The primary reason for not completing the survey was 'unwilling to take the time'. The majority of women was Caucasian and between 40 and 59 years of age (see Table 2). Most of the women had a high school diploma as the highest level of education (46%), followed by some post secondary education (26%), and, finally, 16% reported some high school. Sixty-seven percent of the women were living with a partner, with 62% being married. Slightly over half of the women were employed for pay: full-time (38%) or part-time (13%) for pay.

Breast Screening Characteristics of Program Participants

The Precede/Proceed Model served as the conceptual framework for sorting the breast screening characteristics of program participants into factor categories. The three categories of factors outlined in the Precede/Proceed Model were 1) predisposing, 2) enabling, and 3) reinforcing. Breast screening characteristics included those descriptors relating specifically to breast health behaviors. Identification of breast screening characteristics into such categories will serve as a foundation for designing future intervention studies to enhance breast health behaviors. Frequencies for the breast screening characteristics by year of the project are displayed in Table 3.

Predisposing Factors. Data were examined for predisposing factors such as personal knowledge, attitude, values, and beliefs. Overall 29% of the women in the project had never had a mammogram, ranging from 68% in 2001 to 11% in 2003. Forty-five percent of the total sample had not had a mammogram within the previous two years. In 2001 63% reported not having a mammogram within the previous two years. Further, 73% of the women reported that they had been previously taught how to perform breast self-exam (BSE), ranging from 66% in 2001 to 81% in 2003. Even so, of those reported having been taught BSE, overall only 35% performed BSE monthly. The women reported that key reasons for participating in the program were that they knew the time was due to get a mammogram and they knew they needed it. Conversely, a top reason reported for not getting a mammogram within the past two years was that there was no need to get one.

Table 2
Demographics of Respondents

	N	%
Age (Years)		
35-39	38	6.7
40-49	174	30.8
50-59	129	22.8
60-69	144	25.5
Over 70	30	5.3
No Response	49*	8.6*
Race		
Caucasion	517	91.6
African American	18	3.2
Hispanic	2	0.4
Other	1	0.2
No Response	26	4.6
Marital Status		
Married	348	61.7
Widowed	76	13.5
Divorced	93	16.4
Separated	6	1.1
Never Married	13	2.3
No Response	28	5.0
Living with Partner		
Yes	281	66.7
No	116	27.6
No Response	24	5.7
Highest Education Level		
Some Grade School	23	4.1
Some High School	89	15.8
High School Graduate	261	46.3
Some College	75	13.3
College Graduate	35	6.2
Graduate/Professional Education	18	3.2
Technical School	20	3.5
No Response	43	7.6
Work Status		
Working Full time for Pay	214	38.0
Working Part time for Pay	74	13.1
Not Working for Pay	58	10.3
Retired	104	18.4
Homemaker	67	11.9
No Response	47	8.3
<ul style="list-style-type: none"> • 2001 data not collected in identical ranges 		

Table 3
Breast Screening Characteristics of Program Participants

Counties Served	2001		2002		2003		Overall	
	Dearborn, Ohio, Franklin, Ripley		Dearborn, Ohio, Franklin, Ripley		Dearborn, Ohio, Franklin, Ripley		Dearborn, Ohio, Franklin, Ripley	
	N	%	N	%	N	%	N	%
Total Number of Free Mammograms	141	100%	219	100%	215	100%	575	100%
Never had Mammogram	96	68%	46	21%	24	11%	166	29%
Never Taught BSE	44	32%	43	20%	24	12%	111	20%*
Previously Taught BSE	90	66%	148	70%	165	81%	403	73%*
Performs BSE Monthly	45	33%	79	37%	70	34%	194	35%*
Income <\$25,000	68	48%	120	55%	118	55%	306	53%
No Insurance (National rate for women: 11%)	N/A		83	38%	86	40%	169	39%
Insurance pays for Mammograms	N/A		96	44%	101	47%	197	45%
No Mammogram in past 2 years (National rate: 15%)	89	63%	103	47%	65	30%	257	45%
Follow Up Necessary (National norm: 5-10%)	29	21% (Range:12-27% among counties)	46	21% (Range: 0-27% among counties)	23	11% (Range: 5-18% among counties)	98	17% (Range: 0-27% among counties)
Top Reasons for no Mammography	N/A		1. Cost a lot N=25 2. No Need N=5		1. Cost a lot N=10 2. No Need N=4		1. Cost a lot N=35 2. No Need N=9	
Top Reasons for Participation	1. Time due to get a mammogram N=35 2. Need it N=11		1. Free N=35 2. Doctor recommends N=18		1. Mammo Van Nearby N=32 2. Reassure Self N=31		1. Van Nearby N=40 2. Reassure Self N=31	

* N=552, Number respondents completing items related to BSE

A special acknowledgment is extended to the Indiana Women's Commission, the Greater Cincinnati Affiliate of the Susan G. Komen Foundation, the Health Foundation of Greater Cincinnati, and the Ripley County Community Foundation for funding provided for this project.

Enabling Factors. When considering the skills, resources, and/or barriers that can promote or hinder breast health behavior, key enabling factors were identified. Over half (53%) of the sample reported a family income of less than \$25,000. Over one-third (39%) reported that they did not have insurance. Of those with insurance, 45% reported that their insurance did not pay for mammograms. The number one reason reported for women not getting a screening mammogram was that it 'cost a lot'. While there were variations by year, key reasons for women participating in the program were that the mammography van was nearby and the program was free.

Reinforcing Factors. Six survey questions were related to reinforcing factors, defined as incentives or feedback from others regarding healthy behaviors. In our sample the primary reinforcing factor reported was self-reassurance. Another key factor for participation was physician recommendation.

DISCUSSION

The purpose of this preliminary study was to explore characteristics of rural women who attended a free breast health program that focused on education and screening. Forty-six percent of the sample reported having completed high school. The US Census (2000) reported that nationally among women of the same age, 84% reached this level of education. The average family income reported by over half (53%) of these women was less than the national average annual income of greater than \$45,000.

In a report issued by AHRQ, women covered by private health insurance were more likely to obtain mammograms than those covered by public assistance programs or those uninsured (AHRQ, 2001). Thirty-nine percent of the sample reported having no insurance as compared to the national rate of 34%. The percent of underinsured women in this sample was 55%, which far exceeds the average rate of underinsured rural Americans of 24%. Underinsured women are defined by these authors as women who have insurance but their insurance does not pay for screening mammography. The data from this study further revealed that the financial and insurance situations for this target group had worsened between 2001 and 2003.

The AHRQ report further states that approximately 86% of women aged 50-64 with private insurance received mammogram screening in the past two years compared with 75% of women with public only insurance and 54% for the uninsured. Overall, only 55% of the sample had had a mammogram screening in the past two years, which was consistent with the 54% for the uninsured. Study mammography rates in 2001 and 2002 were poorer than the national and Indiana state averages (85% and 53.5%, respectively). Coughlin noted in 2002 that women who lived in metropolitan areas were more likely to have received a mammogram within the past two years (75%) than their rural counterparts (66%).

In 2001 and 2002, 21% of the women needed follow-up diagnostic mammography. In 2003, 11% required such follow-up. The overall need for follow-up diagnostic mammography was 17%, which exceeded the national norm of less than 10%.

Follow up rates improved from 2001 to 2003. This drop in need for diagnostic follow-up paralleled the decline in rate of first time mammograms, which is consistent with findings of other researchers.

The findings support that women in this rural region sought mammography when mobile mammography units were brought into their communities and services were provided at no charge. In a press report issued 2-13-04, Martin and Pontarelli reported their findings regarding disparities in screening mammography rates (Peek & Han, 2004, p. 186). They found that “ the most effective patient-targeted strategies to increase mammography use are access enhancing efforts such as mobile vans, transportation services and reduced cost mammograms”. In this four county rural region no other programs were available that offered free or low cost mammography services. Even though two community hospitals offered mammography services, the ability to serve those women without private insurance, Medicaid, or Medicare was severely limited. The waiting period for appointments at the local facilities averaged three months. One hospital had a strong community outreach program and did offer reduced billing for mammography during May as a recognition of Mother’s Day. The other hospital had limited community outreach programs. There were no mobile mammography programs. The Breast and Cervical Cancer Treatment Program was not available within this four county region.

Distance has been reported as a barrier to mammography screening in past studies. Distance within the rural community translates to two primary considerations: time and money. For these women, it can be as much as 120 miles or as little as 20 miles round trip to a mammography unit at either of the community hospitals within the region, at one of three free-standing diagnostic units or to a medical center outside of the region. Thus, fuel prices for these miles may often be an issue. Although distance to the closest facility has been noted as a barrier for some women, it was not identified as a barrier for this group of women. Even so, fuel prices may be an issue regarding access to a facility and may increase use of the mobile mammography.

The breast health program was designed to provide services to women who did not have access to publicly funded clinics and/or nearby diagnostic facilities as well as lacked the ability to pay. We do not know why some community women choose not to come to the program or why women choose to go to a distant provider. The reasons why can be theorized, but need to be confirmed through further study. The characteristics identified in this study are congruent with breast health behaviors that have been reported in the literature over the past fifteen years. The characteristics and the identified barriers continue to exist. Through an updated understanding of factors that affect why rural women seek a breast health program including mammography, interventions can be developed and tested to strengthen breast health behaviors in this population. These findings can serve as the foundation for interventions studies to enhance breast health behaviors in rural populations.

Limitations

The first limitation of this study was the lack of a comparison group of rural women not seeking participation in the program. Further, the sample included women between ages 35 and 39 seeking mammography. This 6.7% of the sample could have

adversely affected the results of those receiving first time mammograms as well as number of mammograms within the last two years. The third limitation was that the survey was only completed by women who chose to participate in the project based upon community advertisement. It is not known if these characteristics are reflective of rural women who received mammography at other sites. Additionally, the survey responses were limited to the self-report of women who were provided a free mammogram. While this is a limitation, this method of data collection is consistent with US government data gathering techniques for information regarding health-screening behavior. Subsequently, the free mammogram may have introduced a response bias that resulted in women providing responses supportive of continuing the project. Lastly, the survey was author-developed and lacked tested reliability and validity. It is possible that not all variables that could affect breast health behaviors were included in the survey and that those variables included reflected the three categories of factors reliably.

IMPLICATIONS FOR NURSING

As a result of this study, the researchers have identified that the women participating in the free breast health programs are interested in breast screening behaviors. Based upon the findings, several implications for nursing practice were identified:

1. Rural women are interested in breast health behaviors.
2. Rural women are knowledgeable of BH behaviors but adherence is poor.
3. Financial barriers to accessing breast health programs in rural communities need to be addressed.
4. Strategies need to be developed to facilitate rural women's access and use of local mammography facilities.
5. Professional nurses have as a role teaching and reinforcing breast health behaviors and advocating for facility access for rural women.

SUMMARY

The results of the study support the continued need for breast health programs in rural communities where the number of underinsured and uninsured is increasing. A number of predisposing, enabling, and reinforcing factors have been identified. In the future a well designed qualitative study could serve to validate these identified factors and provide additional answers to the posed research question. Further studies based on findings from this investigation are warranted that identify research hypotheses for the development and testing of intervention strategies that increase breast health behaviors among underserved, rural women. Such interventions will ultimately lead to better health outcomes and will provide a natural link to interventions necessary to support follow-up and treatment to underserved rural women.

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