

1998

Rural Women's Participation in Breast Self-Examination

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RURAL WOMEN'S PARTICIPATION
IN BREAST SELF-EXAMINATION

Joni L. Erlewein

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RURAL WOMEN'S PARTICIPATION
IN BREAST SELF-EXAMINATION

By

Joni L. Erlewein

A Thesis

Submitted to
Grand Valley State University
in partial fulfillment of the requirements
for the degree of

MASTER OF SCIENCE IN NURSING

Kirkhof School of Nursing

1998

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ABSTRACT

RURAL WOMEN'S PARTICIPATION IN BREAST SELF-EXAMINATION

By

Joni L. Erlewein

A descriptive, correlation design was used to examine the relationship between the Health Belief Model (HBM) variables and breast self-examination (BSE) in a population of rural women. Champion's HBM Scale (1993) was given at a cancer screening clinic (n=127). The construct validity for this instrument was established by Champion and alpha reliability for subscales ranged from .74 to .91 in this study.

Logistical regression was performed using the HBM variables of perceived susceptibility, seriousness, benefits, barriers, health motivation, and confidence. Barriers and confidence made a significant difference in BSE performance among the subjects in this study.

Women with friend or relative diagnosed with breast cancer felt more susceptible but this was not related to BSE performance. This research supports previous findings which indicate barriers as significantly related to performance of BSE. Confidence was significantly related to and has implications for education and instruction of proper technique of BSE.

DEDICATION

This research is dedicated to all the women and their families who have endured the disease of breast cancer. These women are an inspiration to us all. It is also dedicated to all the women who go in for the screening and participate in any health promotion program.

Also, to my husband Carl, for all he has had to endure in my long quest for higher education. My family's love and caring have helped me to conquer a mountain. This is also dedicated to my co-workers and colleagues who took the time to listen to my ideas and provide helpful feedback and support on the really trying days.

ACKNOWLEDGEMENTS

This research has been finished as a result of the encouragement and support of many individuals. I am grateful to Patricia Underwood Ph.D., R.N., for serving as the chairperson of this committee. Her knowledge and expertise have helped me in this journey. Her attention to detail and her demand for professionalism will be remembered. I would like to thank my committee members, Phyllis Gendler, Ph.D., R.N., C.S., and Frances McCrea, Ph.D., for their comments and guidance in this research effort.

I would like to recognize Sandy Newman, R.N.C., M.S.N., for her encouragement for me to continue graduate school. I will always remember her kindness and enthusiasm to help when I really needed it. She has a gift for motivating people and instilling an attitude that anything can be done if you put your heart into it.

I would also like to mention Linda Scott, R.N., Ph.D., for her dedication and speed in helping me complete and understand my data analysis. Linda facilitated a greater understanding of the results of my work and the possible implications for practice.

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CHAPTER ONE

INTRODUCTION

Breast cancer is one of the most common and feared cancers that women face today. The health care system has been educating women on early detection practices for breast cancer. One way women can take control of their health is by noticing any changes at the earliest possible moment. One common health practice in which women can empower themselves against breast cancer is breast self-examination(BSE) to increase early detection. Breast self-examination is recommended, along with yearly clinical breast exams(CBE) by a health care provider, with mammography starting at age 50, in the triad of breast health care(American Cancer Society, 1996) .

Although the effects of BSE on breast cancer survivor mortality is still unknown, several studies (Feldman, Carter, Nicastrri, and Hosat, 1981; Foster, Lang, Costanza, Worden, Haines, and Yates, 1978; & Huguley, Brown, Greenberg, and Clark, 1988) have demonstrated that women who do BSE have smaller primary tumors. These tumors are also less likely to have lymph node involvement. BSE has been shown to be helpful in finding breast changes for women who are unable or reluctant to undergo mammograms or CBE

(Friedman, Nelson, Webb, Hoffman, & Baer, 1994). Patients with a delay of at least 12 months, who did not practice BSE, were five times more likely to be diagnosed with positive lymph nodes, then patient's with a delay of 3 months who did do BSE (Feldman et al. 1981).

The pathology of breast cancer still remains a mystery. It is known that an initiator induces a cell transformation and tumor promoters enhance cell proliferation (Lichtman, & Papera, 1990). The only initiator identified is ionizing radiation. Other risk factors are considered promoters. The medical community is unsure of how the promoters influence breast cancer mechanisms (Lichtman, & Papera, 1990). If breast cancer is detected early, the five-year survival rate is 90%. The survival rate drops to 60% if the cancer has spread to nearby lymph nodes or surrounding tissue (Crooks, & Jones, 1989). Survival rates may differ depending on the type of breast cancer diagnosed.

The triad of BSE, CBE, and mammography for early detection is recommended by the American Cancer Society (ACS) and the National Cancer Institute (NCI, 1996). Separately they are not as powerful, but practiced in combination they make strong allies. Nurses have always been considered knowledgeable and concerned about the public's health. This public trust may present nurses with a unique

opportunity to educate and support women in the practice and lifelong performance of BSE. By encouraging BSE as well as good nutrition and exercise, nurses may help to decrease the advanced stage at which breast cancers are detected.

The ACS and the NCI agree that monthly BSE is important to help find breast cancers in an earlier and more curable stage of diagnosis. BSE is a health promoting activity even though it is considered secondary prevention, which means breast cancer is not prevented but rather detected at the earliest time possible. The benefits are worth the time given to this health practice which is private, free, convenient, safe, requires no equipment, and is not time intensive. Studies continue to show that women know BSE is important and they know how to do it, but they do not perform this simple monthly exercise in health promotion (Cretin, 1989). Women who do not perform BSE do not rely on mammograms as an alternative. In fact, Feldman, et al., (1981) found that women who practice BSE were the ones more likely to have mammograms.

Breast self-examination becomes an important factor because successful treatment of breast cancer may depend on the time of detection. A more optimistic prognosis is probable if breast cancer is diagnosed and treated at an early stage. Excluding lung cancer, breast cancer is the

most common cancer of women and is the most common cause of death for women ages 40 to 55 (ACS, 1996). Breast cancer accounts for one out of every three cancers diagnosed in women. Approximately 183,300 cases of invasive breast cancer were expected to be diagnosed in 1996 (ACS, 1996). The average years of life lost to breast cancer is 20 years compared to 16 years for all other types of cancer combined (Colditz, 1993).

Nurses are in the position to evaluate factors that may keep women from practicing BSE monthly. In the United States, nurses are the largest and most diverse group of health care providers. Today nurses can reach many women who may have been forgotten by the health care system. If women are to be effective with BSE they must first understand how important it is, how to perform it, and commit to BSE as a lifelong practice.

The Health Belief Model(HBM) will be used as a theoretical framework for this study (Rosenstock, Stretcher, & Becker, 1988). This model attempts to explain why certain people participate in disease prevention activities. This model has been used frequently when trying to explain and predict BSE performance. If health care professionals can determine why an individual does not perform an activity, such as BSE, then steps can be taken to eliminate problems

and hopefully increase performance. Strong evidence shows an association between HBM variables and participation in early cancer detection (Champion, 1984). Nurses can educate women on early detection of cancer by creating and continuing programs for cancer screening and education for women.

This study will build on studies by Champion (1984, 1987, 1988, 1991, 1992, 1993) and Gray (1990). Champion (1984) developed valid and reliable scales to test the HBM constructs in relation to BSE. The constructs tested were perceived susceptibility, perceived seriousness, perceived benefits, perceived barriers, and health motivation in relation to BSE. One study (1984) indicated that 26% of the variance in BSE could be explained by these HBM constructs. In 1993, Champion revised her instrument and incorporated the construct of self-efficacy through the measurement of confidence.

Gray (1990) conducted a descriptive, correlational study to investigate the relationship between frequency of BSE practice and HBM variables including perceived susceptibility, perceived seriousness, perceived benefits, perceived barriers, and health motivation. Knowledge of breast cancer and breast self-examination and sociodemographic variables were also examined in relation to frequency of BSE performance. Gray used Champion's (1984)

instrument to evaluate the frequency of BSE in a rural sample of 347 women. Findings suggest that the HBM concepts account for 26% of the variance in BSE practice. Women who perceived more benefits and had higher health motivation were more likely to perform BSE.

Purpose

The purpose of this study was to explore the relationship between the Health Belief Model (HBM) variables and breast self-examination(BSE) frequency in a selected population of rural women age 40 and over in the Midwest United States. Numerous studies have been conducted on urban women's participation in BSE. This study was developed to add to the research by Gray (1990) and focus on low income rural women.

CHAPTER TWO

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Theoretical Framework

The Health Belief Model (HBM) was selected as a theoretical framework for this research study and has practical application to the practice of breast self-examination (BSE). The HBM is well researched and has been used to explain many health behaviors. BSE can be considered a health behavior because it may increase the early detection of breast cancer. The HBM facilitated placing this research within the body of knowledge related to BSE since many previous researchers have applied the model to BSE performance investigations.

The HBM was designed in the early 1950s in an attempt to understand the failure of people to accept disease prevention screening tests for early detection of asymptomatic disease (Janz, & Becker, 1984). The HBM is a formulation of a psychosocial theory developed to investigate motivation toward health behaviors in individuals (Williams, 1988). The basic components are derived from well established psychological and behavioral theories. The model continues to be revised and imposes assumptions regarding an individual's motivation for health

behaviors (Becker, 1974). It has been used extensively in research and has undergone numerous changes since introduction in the 1950s. Most studies have supported relationships among HBM variables and health behaviors.

The model can be divided into three areas: individual perceptions, modifying factors, and action-taking variables. Individual perceptions involve perceived seriousness of and perceived susceptibility to a given problem. Modifying factors reflect demographic, personal, and structural variables that affect a person's motivation and perception of disease. Action-taking variables are perceived benefits and perceived barriers that affect the likelihood of an individual taking recommended action of a health behavior (Williams, 1988). The HBM suggests that incentive to engage in a health promotion task is a function of the benefit obtained for participating in the behavior less the barriers associated with it (Williams, 1988).

The major concepts of the HBM include perceived susceptibility, seriousness, benefits, and barriers. Susceptibility is defined as an individual's perceived vulnerability to an identified illness or disease. Seriousness of a disease includes the perceived degree of danger involved with the particular disease or health-related problem. Perceived benefits of prevention are

outcomes that reduce threats as a result of performance of a health behavior. The perceived barriers are negative aspects of a health behavior, outcomes that may increase a threat. As the HBM has evolved, variables were added to the equation. Health motivation was added by Becker, Drachman, and Kirscht (1974). Research has supported positive relationship between motivation and BSE (Williams, 1988). Control was added by Hershey, Morton, Davis, and Reichgott (1980) and used in conjunction with the original variables for continued evaluation of an individual's health behaviors (Champion, 1991). Confidence was added by Rosenstock, Strecher, and Becker (1988). They equate this with Bandura's construct of self-efficacy, that a person can successfully execute the behavior needed to produce a desired outcome. Significant findings in prior research have shown relationships between BSE and self-efficacy (Brailey, 1986; Kurtz, Given, Given, and Kurtz, 1993). Knowledge is usually considered a variable outside the HBM that can influence attitudes that may, in turn, influence an individual's health promoting behaviors.

The current research will employ the HBM to examine a variety of modifying variables combined with variables in the HBM to produce the performance of the health activity of BSE. The variables included in this study are perceived

susceptibility, seriousness, benefits, barriers, health motivation, confidence, and BSE practice and knowledge.

In the 1970s, the HBM variables were examined for their efficacy in explaining BSE. The model suggests that health behaviors are more likely to happen if a person feels susceptible to a disease and believes that the disease is a serious one. Thus, an individual is likely to practice BSE if she believes that she is susceptible to breast cancer and that cancer is serious (Champion, 1988). Women must feel that there are benefits to BSE and few barriers to performing this practice. Finally, a woman having confidence in her own ability may increase her BSE activity (Brailey, 1986). All of this information can be helpful to nurses in planning prevention programs to improve the health of women worldwide. In the United States, there is an increase in breast cancer and health care professionals need to understand how to educate and encourage women to do monthly breast self-examination to promote early breast cancer detection.

The HBM is not without notable weaknesses and some suggest that it is more a catalog of variables than a genuine model. Research has suggested that a lack of consistency in operationalization of constructs may be responsible for lack of a relationships among variables

(Damrosch, 1991). Limitations may also include the omission of habitual aspects and non-health reasons why an individual may perform an action and the importance of economics and environment as barriers to performing health behaviors.

In using the HBM as a framework for research, one may find additional limitations involved with the instruments used. Listwise multiple regression was used to test the combined influence of HBM variables on frequency of BSE practice. The HBM variables were also entered into multiple regression analysis as though each influenced BSE independently.

Instruments to measure the HBM variables have varied in what they are measuring and how this reflects on an individual's health practices. Champion (1984) also found that some studies lacked reliability and validity testing, and concepts were being tested only at a nominal level. Her 1984 instrument started to change this practice, and was revised in 1993 with an internal consistency of .80 for benefits and .93 for the susceptibility concepts.

Literature Review

Various studies suggest that the HBM can predict the possibility of a person practicing a health related behavior. Individuals may see themselves as less threatened or less susceptible to a disease therefore, they may not

participate in healthy behaviors. This may indicate that health beliefs are important in determining if an individual will practice a certain behavior.

Champion (1987) conducted a correlational study that examined the relationships between health belief model variables and BSE in 588 women using a modified 1984 instrument. The concepts of knowledge and frequency of BSE and perceived control were added. Multiple regression and discriminant analysis showed variance in the frequency of BSE was explained by barriers, knowledge, and susceptibility variables ($R=.52$; $p<.001$). An interesting finding was that persons taught BSE by a doctor or nurse were more likely to perform it.

Champion(1988) again used her 1984 instrument and added the concept of control to examine relationships between attitudinal variables specified by the Health Belief Model and the variables of proficiency, intent, and frequency of breast self-examination in 380 women aged 35 years and older. The results identified susceptibility, seriousness, barriers, health motivation, and control as predictors of intent to practice BSE. Frequency and proficiency were predicted by health motivation, susceptibility, and barriers. Her results support the use of HBM variables in predicting a woman's intention and behavior regarding BSE.

In 1990, Champion contacted 363 women from the 1988 study by telephone to complete a second interview using the 1984 instrument along with additional scales to measure social influence, confidence, and knowledge. This correlational study was done to identify significant attitudinal variables included in the Health Belief Model. Past BSE performance, perceived barriers, and knowledge predicted current performance. Frequency was also predicted by past frequency, barriers, health motivation, control, confidence, clinical breast exam, review of BSE procedures, benefits, and susceptibility.

A mailed questionnaire was used in 1991 by Champion, to collect data from 322 women over 35 years old using the 1984 scale along with measurements of confidence, knowledge of breast cancer and BSE, and social influence. Relationships between selected variables and BSE practice, professional breast exam, and mammography were examined. Relationships between BSE and attitudinal variables of health motivation, social influence, susceptibility, barriers, confidence, and knowledge were supported. In the past, research on BSE and the HBM has usually found at least one variable having a significant effect on the practice of BSE. Champion (1985) found that perceived susceptibility to and seriousness of breast cancer were not related to the frequency of BSE.

Susceptibility may be a difficult variable to evaluate. In several studies the greatest amount of variance in the practice of BSE from has been explained by the barriers to BSE performance (Champion, 1987). Benefits have also been found to account for a percentage of variance, but not as large a share as the barriers variable (Champion, 1985). A study conducted by Gray (1990), who used Champions's 1984 scale, suggested that benefit accounts for the largest portion of variance in the frequency of BSE. It may be possible in this situation that women who perceived benefits in early cancer detection may perform more frequent BSE (Gray, 1990).

Health motivation has been less thoroughly tested, but Williams (1988), who also used Champion's 1984 instrument along with her own health history and assessment, examined each HBM variable independently, and found health motivation to explain the most variance (18%) in frequency of BSE performance. Confidence is a new and less tested variable, but in the past self efficacy has shown a strong relationship to frequency of BSE (Gonzalez, 1990). Champion (1991) also found evidence that confidence in finding a breast lump was related to frequency of BSE, mammography, and professional breast examinations. Knowledge is also a factor that is addressed in many of the more recent studies.

Champion (1991) suggested that knowledge of BSE may be an important factor in practicing the BSE correctly. Williams (1990) also found knowledge to be significantly related to frequency of BSE, and this was tested by researcher-developed instruments.

Wyper (1990) used a modified version of Champion's 1987 instrument to examine the relationships of variables derived from the HBM to BSE performance in 202 women, 18 years old and over. A questionnaire was given to women from a variety of settings. Champion's instrument(1987) was modified and used to measure perceived susceptibility, perceived seriousness, perceived benefits, and perceived barriers. The findings were similar to Champion's (1984, 1987) and Rutledge's (1987) with correlations between the HBM variables and frequency of BSE. Multiple regression showed that only susceptibility and barriers contributed to an explanation of the variance for the three measures of BSE(frequency, thoroughness, and practice). When using stepwise regression, barriers accounted for the largest portion of variance in BSE, regardless of the measure. Barriers was the most powerful dimension of the HBM, as in many previously reported studies.

Williams (1988) described a study that examined variables predictive of breast self-examination in older

women. The women ranged in age from 62 to 93 years old. Self-report questionnaires were completed by 253 subjects. The research questions assessed relationships between frequency of BSE and health beliefs, health history, and knowledge. Champion's tool (1984) and the investigator's tool, the Williams Breast Inventory Scale, were used for data collection. HBM variables and frequency in BSE were analyzed using stepwise regression, and 30% of the variance of BSE was accounted for by susceptibility, seriousness, benefits, barriers, and health motivation. In independent examination, health motivation explained the largest amount of variance at 18%, with barriers, susceptibility, and benefits explaining an additional 8%, 3%, and 1% respectively. Perceived seriousness was not found to be a significant predictor of BSE. When knowledge was tested, 72% of subjects answered five of the six items correctly. Eighty-five percent of the participants were aware of the importance of visual and palpation portions of BSE. Health history accounted for 27% of the variance in BSE in a stepwise multiple regression. Four health history variables: examination by a doctor, examination by nurse, being taught BSE by doctor, and being taught BSE by nurse were also found to be important in BSE performance.

Rutledge and Davis (1988) used a self-report

questionnaire developed by Davis to examine BSE compliance in women. Two-hundred and forty-eight women from industrial jobs, college, and YWCA programs were given questionnaires. Knowledge of BSE, BSE learning experiences and beliefs were examined. Out of 28 variables, 7 accounted for 58% of the variance in BSE compliance in a regression analysis. The variables included having a reminder, encouragement by family and friends, confidence in ability to do BSE, age(younger), physician interest in BSE compliance, disagreement that BSE causes worry, and concern regarding breast cancer.

Lashley (1987) conducted a descriptive, correlational study of 123 elderly senior women from two senior citizen complexes using Champion's 1984 instrument and frequency of BSE. The HBM was used for the theoretical framework, and BSE technique and frequency were measured by a 53 item, three part questionnaire. Forty-eight percent of the women were African-American and 51% were Caucasian. Twenty-seven percent had an eighth grade education or less. The data indicated that 61% of the women reported performing BSE monthly and 15% practiced BSE every other month. The only source of instruction that increased BSE performance was television. Perceived barriers were found to be the best predictors of BSE frequency and explained 6% of the total

variance. This varies from other studies in finding a positive correlation between perceived barriers and frequency in performance of BSE. Perceived susceptibility, benefits, and demographic variables were not significant predictors in the study. In evaluating BSE technique, 5 of the 14 steps of BSE were practiced by less than 50% of the women. The most practiced step was feeling for lumps, knots, or thickening. Race, age, and perceived barriers combined predicted 19% of the variance in the BSE technique. Interestingly, the author felt future studies needed to explore other areas, such as psychological and sociocultural variables, to more accurately explain BSE behavior.

Kurtz, et al., (1993) conducted a comprehensive study to investigate variables related to BSE behaviors, primarily performance. A questionnaire based on barriers and facilitators from the HBM, and Bandura's concept of self-efficacy was completed by 3,737 women. Ninety-eight percent of the women had been taught BSE and 68% reported they did BSE. Only 59% did so in compliance with the ACS guidelines (1996). Women who exercised more frequently were more compliant with BSE. Discomfort was one of the barriers, and lack of knowledge with efficacy of BSE a determining factor in whether a woman performed BSE.

Baker (1989) conducted a quasi-experimental study to

test a HBM-based BSE education model against standard BSE teaching model. There were 68 women in the experimental group with an age range of 60 to 95. They received a one hour BSE intervention, a study guide based on the HBM, and education tailored for an older woman. The experimental intervention included several methods such as discussion, lecturette, workbook, modeling, guided practice, and risk awareness education. The control group of 66 women received an hour of standard instruction in BSE and an informational book. Thirty-two percent of the women in the experimental group reported high posttest BSE quality, compared to 16.7% in the comparison group. T-test analyses revealed significant increases from pretest to posttest for perceived benefits, susceptibility, and self-efficacy. The experimental group also showed a significant decrease in barrier scores from pretest to posttest.

Gray (1990) examined the factors related to the practice of BSE in 347 rural women from Montana. The HBM was used to investigate the relationship between frequency of BSE and perceived seriousness, susceptibility, benefits, barriers, and health motivation. Knowledge of BSE and breast cancer as well as demographic variables were examined in relationship to frequency of BSE practice. Champion's Health Belief Model Scale(1984) was used to measure the HBM

variables and BSE practice. The questionnaires were mailed to women in the county-extension club. Listwise multiple regression was used to test the combined influence of the HBM variables on frequency of BSE and this was 25.8%. When analyzed independently, benefits accounted for the highest variance at 12.4%, barriers 8.3%, health motivation 7%, and susceptibility 4%. Seriousness was not a significant predictor. The Pearson product-moment correlation indicated a positive, significant relationship between knowledge of BSE and practice of BSE.

Sensiba and Stewart (1995) conducted a study of 374 women to determine the relationship of perceived barriers to BSE in women of varying ages and levels of education. Champion's instruments from 1984 and 1988 were used to collect data. A 30 question, two-part questionnaire was utilized to obtain data on the perceived barriers construct, age, and education. Subjects ranged in age from 19 to 80 years and were divided into three groupings. The three predetermined age groups were: 18-34 years, 35-54 years, and 55 years old and over. Education ranged from 9 to 17 years and was also placed into 3 groupings. The three predetermined educational levels were 12 or less years, 13-16 years, and 17 or more years of education. Chi-square analysis revealed no significant differences between

observed and expected frequencies of BSE among age groups or educational levels. This is consistent with Cope (1992) and Champion (1991). Cross tabulations suggested that perceptual differences in barriers exist among age groups and among educational groups. Findings suggest that modification of presentation content to each age and educational level may increase effectiveness of BSE.

Phillips and Wilbur (1995) conducted a study of 154 women to identify and compare adherence to breast cancer screening guidelines. Cox's (1985) interactive model for client health behavior was used in this study. The theoretical framework included variables from the HBM, Theory of Reasoned Action, and self-efficacy construct. The health belief model variables of perceived benefits, barriers, and susceptibility were measured. Intrinsic motivation was measured using the Health Self-determination Index, that was developed by Cox, (1985). BSE self-efficacy was measured by Fiscella's, (1990), BSE self-efficacy tool. The sample consisted of 154 African-American women of various ages. It was found that 62% of the participants performed monthly BSE and that service workers performed BSE more frequently than teachers. Bivariate and multivariate logistic regression procedures were used to identify the variables most predictive of BSE performance. Seven of the

16 variables distinguished between the women who were compliant versus non-compliant with BSE. Women, who were compliant, had private insurance, were married, had high knowledge scores on BSE, had been taught BSE, perceived few barriers, and expressed the intention of doing monthly BSE. Women who intended to practice monthly BSE in the future were 21.1 times more likely to do BSE than the women who did not intend to practice BSE. A stepwise multiple regression showed 6 of the 16 variables contributed independent and significant explanations of compliance. Intention to practice BSE was the strongest predictor of BSE, and marital status and health-care provider recommendation were significant in bivariate and multivariate analyses. Together all significant variables explained 74% of variance in monthly BSE practice.

Champion (1984) created a tool to measure the relationship of the HBM variables to BSE performance. Prior to this instrument development, reliability and validity were not tested. Operational definitions varied greatly among studies. Many researchers have studied only one or two HBM concepts, and concepts were operationalized only at the nominal level. By incorporating Champion's (1987) instrument, new information could be gained and supported. Champion (1987) updated and re-evaluated the questions and

added the concepts of knowledge and perceived control to the questionnaire. Champion (1991) also added the concept of confidence to her BSE instrument.

In her instrument, Champion (1991) addressed the relationship of selected variables to BSE practice in women over 35 years old. The variables measured in this study included perceived susceptibility, seriousness, benefits, barriers, health motivation, social influence, knowledge, control, and confidence as related to BSE performance. The significant variables accounted for 29% of the variance. The Beta coefficients indicated confidence, knowledge, and barriers almost equally predicted BSE practice. Women who perceive more barriers are less likely to perform BSE. Confidence seems to relate to BSE practice, and knowledge is shown to be important in performing BSE correctly.

Champion (1993) has continued to refine her instrument for evaluation of the breast screening practices as related to the HBM variables. The scales from 1984 were completely reevaluated and a new scale that measures the construct of confidence was added to the instrument. The subscales produced higher Cronbach Alphas. Predictive validity using multiple regression analysis resulted in significant effects for all six variables.

In Summary, the research literature identified barriers

as one of the primary elements in the HBM affecting BSE practice. Confidence, or self-efficacy, has been shown in many studies to be an important factor as well as the intent to perform BSE. Health motivation has been demonstrated to have at least a small significant correlation with BSE behavior. There is continued debate over the relationships among HBM variables and how they relate to health behaviors. This is generally blamed on the lack of appropriate tools for measuring the variables.

The barriers variable is attributed as having the greatest effect in BSE behavior. This variable has, in the past, been the easiest to evaluate. Several limitations have been mentioned in BSE studies including ignoring the aspect of habit forming behaviors, inability to measure intent of BSE practice by women, and inconsistency of educational breast cancer programs.

Research Questions

The research question for this study is: Among rural women over 40 years old, how is the frequency of practice of BSE explained by (a) Health Belief Model variables of perceived seriousness, susceptibility, benefits, barriers, health motivation, and confidence; (b) knowledge of BSE and breast cancer; and (c) sociodemographic variables.

It is hypothesized that the variables of benefits,

barriers, health motivation, confidence, knowledge, and sociodemographics will be related to frequency of BSE.

Definition of Terms

Conceptual definitions for the variables are as follows:

1. Perceived susceptibility: subjective risk of contracting breast cancer.
2. Perceived seriousness: subjective harmful consequences of breast cancer in relation to altering an individual's lifestyle.
3. Perceived benefits: subjective effectiveness of BSE in reducing the threat of breast cancer.
4. Perceived barriers: potential negative aspects of BSE.
5. Health motivation: general concern about health matters.
6. Confidence: perceived procedural competence to perform BSE with perceived ability to detect abnormal lumps.
7. BSE practice: self-report of practice of BSE; the number of times BSE was performed in monthly increments.
8. BSE knowledge: knowledge about factual information on breast cancer and BSE.
9. Sociodemographic variables: demographic data including age, education, race, marital status, income, how they were taught BSE, personal experience with breast disease, and friend's experience with breast disease.

CHAPTER THREE

METHODS

Research Design

A descriptive, correlational design was used to examine factors that are related to the practice of breast self-examination among rural women over forty years of age. There is no control over the independent variables and there is no experimental manipulation or random assignment.

Environmental effects might have threatened internal validity. Participants may have answered questions in a inconsistent manner depending on the time of day they completed the questionnaire, how many distractions they had, and other factors related to their general recall. Their answers may have also been affected by recent health care issues or situations in their environment.

Threats to external validity might have included the Hawthorne and measurement effects. The Hawthorne effect might have been a threat because participants may have completed the questionnaire based on being part of a research study. Because the subjects were given additional attention relative to breast cancer awareness, participants may have answered questions the way they believe they were expected to answer them instead of how they actually performed BSE. Measurement effect may have been a threat

because of the possibility that completing the questionnaire may have acted as a reinforcement to BSE behavior and thus the subjects' results may not apply to women who have not participated in research. The individuals who chose to complete a questionnaire may have been different than those who did not volunteer. An additional threat to external validity was the use of a convenience sample.

Sample and Setting

The population for this research were women over 40 participating in the Breast and Cervical Cancer Control Program (BCCCP) within 10 counties in rural Michigan. Criteria used to select subjects for this research project were:

- 1)over forty years of age
 - 2)female
 - 3)local address within the ten county area
 - 4)participant in (BCCCP) at their local Health Department.
- This program is designed to offer screening mammograms for women with little or no insurance along with providing BSE education at their screening visit.
- 5)low income: 250% below Federal poverty guidelines

The sampling frame was a list of participants of BCCCP in a select area in a mid-western state. The number desired for the sampling group was 125 women. The instrument was

administered to 127 women from 181 that were offered the instrument on a voluntary basis at their annual visit to the BCCCP. The subjects that participated did so through self selection with a 70% rate of participation.

Instruments

One of the instruments used for this research project was Champion's BSE Health Belief Model Scale (1993) see Appendix B. This scale has been used in several research projects relating variables in the HBM with BSE and mammography behaviors. The instrument is composed of subscales to measure perceived susceptibility, seriousness, benefits, barriers, health motivation, and confidence. Susceptibility has five questions; seriousness has seven, benefits has six; barriers has six; health motivation has seven; and confidence has eleven. All items measuring these attitudes are placed on a five-point scale ranging from strongly agree to strongly disagree.

Content validity of this tool was established by review of items by an advisory panel whose members were experts in scaling and/or measurement of the HBM. Multiple regression was performed to measure the ability of this instrument to predict BSE. Twenty-four percent of the variance was accounted for by these variables. In regression analysis all scales were acting as theoretically predictable of BSE

behavior thus supporting construct validity. Internal consistency reliability for the subscales using Cronbach Alphas ranged from .80 to .93. Test-retest reliability coefficients utilizing Pearson's r ranged from .45 to .70 with a period of up to two months between testing (Champion, 1993). While a .45 on seriousness and benefits variables, may be low for a test-retest correlation, it is attributed to the two month time span from the time of return of the questionnaire and the interview. It is also possible that the exposure to these items may have changed the participants attitude, creating a testing effect. Having interviews versus self-administered questions in the second set of data collecting methods could also have decreased the correlation between the sets of data.

The practice of BSE was measured by a single question in which a participant answered how often she examined her breasts. This was measured by a six step scale from never examine to examine more than once per month using incremental steps.

Knowledge of breast cancer and BSE was measured by ten multiple choice questions. These questions were designed in the first HBM instrument by Champion in 1984. These questions tested factual knowledge of breast cancer and BSE (see Appendix C).

Demographic data were obtained in relation to age, race, marital status, education, income. and personal experience with breast disease, and how they were taught BSE (see Appendix D).

Procedure

The proposal was submitted to the Grand Valley State University's Human Research Review Committee for approval(see Appendix F). A letter was sent to Dr. David Nolan the Medical Director of District Number 10 Health Department along with a copy of the questionnaire for his approval for use at the clinic sites (see Appendix E).

Following approval, women from the Breast and Cervical Cancer Screening Program for District 10 Health Department were selected. The sample was a convenience sample of 127 women participating in the Breast and Cervical Cancer Screening program for their annual cancer screening tests. The questionnaire and the cover letter(see Appendix G) was given to each individual who agreed to voluntarily participate in this research project. The women were asked by the clerk at the screening site if they would like to participate in a study regarding women and their knowledge and participation in BSE. If they chose to participate they were given the questionnaire attached to a cover letter describing the reason why the research was being performed

and that this was voluntary. The questionnaire took approximately 15 to 20 minutes to complete, and they completed the questionnaire while waiting for their examination. The questionnaire was then returned to the clerk at the front desk. In the cover letter the participants were given the option of leaving their address on a plain postcard for a summary of the results from the study (see Appendix G). The primary researcher and the clerk were at all clinic sites and available for questions.

Human Subject Risk

Confidentiality was a risk to the participants and the researcher addressed this issue in the cover letter. By reminding participants to not put their name on the questionnaire confidentiality was intact.

CHAPTER FOUR

RESULTS

This research sought to answer the question: Among rural women how is the frequency of BSE explained by (a) Health Belief Model variables (perceived seriousness, perceived susceptibility, benefits, barriers, health motivation, and confidence); (b) knowledge of BSE and breast cancer; and (c) sociodemographic variables. It was hypothesized that the variables of perceived susceptibility, barriers, health motivation, confidence, and knowledge of BSE would be related to frequency of BSE practice.

Sample Characteristics

Demographic data were analyzed using descriptive statistics. The final sample consisted of 127 subjects out of the 181 subjects that were approached at the screening sites, giving a response rate of 70%. The ages of the respondents ranged from 40 to 89 years old with the mode over 60 (n=10) and the median age of 55 years old. Of the subjects, 91% were White, 4% were African American, 1% Asian, 1% Native American, and 3% were listed as other. Sixty-two percent of the respondents were married, 9% were never married, 10% were widowed, and 17% were divorced.

Years of education ranged from 6 to 18 years with a

mean of 12 years of formal education. Sixty-one percent of the respondents had a friend or relative who had been diagnosed with breast cancer. The respondents' mean family gross annual income for the past year was in the \$10,000 to \$19,999 category, with 43% of the sample in this income level. Thirty-six percent of the subjects were in the income level of under \$10,000, and 17% were in the \$20,000 to \$29,999 range.

Specific characteristics related to breast self-examination(BSE) education were obtained from the respondents as described. Women were asked to indicate all sources of education, thus allowing an individual more than one response. The majority of the sample received education from nurses(70%), pamphlets(55%), and videos(46%)(see table 1).

Table 1

Identification of the Source of Knowledge of BSE (N=127)

<u>Source of knowledge</u>	<u>Number of Women</u>	<u>Percent</u>
Nurse	88	69.3
Pamphlet	70	55.1
Video	58	45.7
Physician	43	33.9
Television	24	18.9
Book	14	11.0
Radio	1	.8
Other	3	2.4
Never taught	3	2.4

Note: Respondents were asked to check all that apply.

Data Analysis

The questionnaires were numerically coded as they were returned from the subjects. Champion's (1993) Health Belief Model questionnaire used for this research project. The instrument used in this study included five items related to susceptibility, seven related to seriousness, six items related to benefits, six to barriers, eleven to confidence, and seven related to health motivation. All items measuring these attitudes were placed on a five point scale ranging from strongly disagree(1) to Strongly agree(5). All data were analyzed using the Statistical Package for Social Sciences (SPSS).

One research question for this study asked what sociodemographic factors are related to the practice of BSE among rural women? Demographic variables of age and education were examined in relation to subscales, and it was noted that older women perceived breast cancer as less serious ($r = -.35$; $p < .001$). As a woman's age increased it was also demonstrated that she felt there were fewer benefits to BSE ($r = -.19$; $p = .04$) and more barriers to BSE performance ($r = .20$; $p = .02$). The relationships between the variables of age and benefits and barriers were weak.

The data from the Demographic and Champion's Health Belief Model questionnaire for this study were analyzed

using frequency distributions to identify information about the respondents' education on BSE and their performance of this activity. The frequency of performing BSE varied from "more than once a month" to "do not do exam." Of the sample, 41% do BSE monthly, 14% every other month, and 16% every 3 to 6 months(see Table 2).

Table 2

Identification of the Frequency of Performance of BSE

<u>Frequency</u>	<u>Number of Women</u>	<u>Percent</u>
Greater than monthly	18	14.2
Monthly	52	40.9
Every other month	18	14.2
Every three to six months	20	15.7
Greater than six months	12	9.4
Do not perform exam	7	5.5

The frequency of performing BSE varied from "more than once a month" to "do not do exam". This frequency distribution was subdivided into two groups those who practice BSE at least monthly in Group One, and those who practice less than once a month in Group Two. T-tests were done related to knowledge and the HBM variables between BSE

Group One and Group Two. No significant differences were shown between the two groups related to knowledge scores, perceived susceptibility to breast cancer, or perceived seriousness of breast cancer. The subscales of barriers, benefits, confidence, and motivation were significantly different between the two groups (see Table 3). Women from Group One who practice monthly BSE were more confident and motivated in performing BSE and felt there were fewer barriers and more benefits to BSE than women in Group Two.

Using a t-test for the variable of age related to frequency of practice of BSE, there was no significant difference between the ages of participants from Group One or Group Two. Women with higher education in years, showed decrease in their feeling of susceptibility to breast cancer ($r = -.28$; $p = .01$). The t-test analysis indicated there was no significant difference in years of education between Group One and Group Two BSE groups.

Table 3

T-test in Group One (compliant) (n=70) versus Group Two (non-compliant) (n=57) of monthly BSE Total(n=127)

<u>Variable</u>	<u>t-value</u>	<u>p-value</u>
Benefits	2.7	0.008
Barriers	3.2	0.002
Confidence	4.1	<.001
Motivation	3.9	<.001

T-tests for independent samples were performed on the basis of knowledge scores. The higher knowledge group had scores reflecting 70% in correct answers, while The low knowledge group had scores from 1 to 6 correct answers. There were a total of 10 knowledge questions and the mean score was 60%. The score of six correct answers was used as the dividing line for the Low Knowledge Group because this was over half of the questions answered correctly. T-tests differences between knowledge groups were significant for seriousness and susceptibility. Those participants with low knowledge scores perceived themselves to be more susceptible ($t = 3.0$; $p = .002$) to breast cancer, and viewed breast cancer as a more serious threat ($t = 2.4$; $p = .02$). No significant differences were found for confidence,

motivation, benefits, or barriers between the high and low knowledge groups (see Table 4).

Table 4

T-test in High Knowledge Group versus Low Knowledge Group

<u>Variable</u>	<u>t-value</u>	<u>p-value</u>
perceived seriousness	3.0	.002
perceived susceptibility	2.4	.02

Subjects were asked if they had a friend or relative who had been diagnosed with breast cancer. Women with a friend or relative with breast cancer felt themselves to be more susceptible to the disease ($t = 2.3$; $p = .02$) than those who had no direct ties to someone with this diagnosis. However, there was no significant difference in BSE practice between women who did or did not have a friend or relative with breast cancer.

The participants were again divided into two groups: Group one for practicing BSE at least monthly and Group Two who practiced BSE less than monthly. Logistical Regression was used to determine which if any of the seven HBM variables were influential in BSE participation of the

subjects. Self-confidence and perceived barriers were identified as significant predictors of BSE performance. Rural women with lower self-confidence were less likely to practice BSE (O.R.=.86; p=.006) than women who had more confidence in their ability to perform BSE. Women who perceived more barriers to BSE were significantly less likely to perform regular self-examination than women who perceived fewer barriers (O.R.=1.3; p=.004) (see table 5).

Table 5

Logistical Regression of Two Health Belief Model Variables by the Frequency of Breast Self-Examination (N=114)

Group One (compliant) versus Group Two (non-compliant)

Variable	B	SE	Odds Ratio
Barriers	.23	.08	1.26
Confidence	-.15	.06	.86

The HBM variables of confidence and barriers were found to be significant predictors of BSE practice in this study. Therefore, examination of the variables that affect confidence and barriers were performed.

One way ANOVAs were used to see if any differences were

noted in the HBM variables among the six individual practice groups. The groups ranged from practicing BSE more than monthly to not practicing BSE at all. The women in the group that performed BSE on a monthly basis were more motivated in performing BSE than any of the remaining groups. Post-hoc analysis with Scheffe' test indicated that group 3, which was the BSE monthly group was also significantly more confident than any of the other practice groups.

Summary

In the sample of 127 subjects, 55%(n=70) in this study performed BSE at least monthly. The median age was 55 years old, and 62% of the subjects were married. Forty-three percent had yearly incomes from \$10,000 to 19,000, and differences in income were related to BSE performance. Demographic variables were compared with frequency of BSE and revealed no significant differences on the basis of age or education between women who practice BSE at least monthly and those who did not.

The research question asked whether the variables of perceived susceptibility, seriousness, benefits, barriers, health motivation, or confidence would be related to BSE practice. Logistical Regression indicated that barriers and confidence contributed significantly to the performance of BSE (Table 5). Women who perceived more barriers were less

likely to perform BSE; and women who had less confidence practiced BSE less frequently. Knowledge scores in this study revealed lower scoring subjects perceived more seriousness and susceptibility to breast cancer. Seventy percent of the subjects were taught BSE by a nurse.

Findings from this study support previous research on the Health Belief Model, but indicate that all variables in this model do not significantly affect individual participation in BSE. The hypothesis that HBM variables affect BSE practice was not totally supported.

CHAPTER FIVE

DISCUSSION

The research question for this study was: Among rural women, how is frequency of practice of BSE explained by (a) HBM variables (b) knowledge of BSE and breast cancer and (c) social demographic variables. The current research is a continuation of the efforts to identify variables related to BSE and has built upon efforts to examine the HBM as an explanation of BSE practice (Champion, 1987). The variables used from the HBM for this study include perceived susceptibility to breast cancer, perceived seriousness of breast cancer, perceived benefits of BSE, perceived barriers to BSE, health motivation, and confidence. The health promoting activity of BSE was measured on a scale of 1 to 6 from practicing BSE more than once a month to not at all.

Champion (1993) refined her questionnaire to measure the HBM concepts of susceptibility, seriousness, benefits, barriers, health motivation, and confidence, using the context of breast cancer and BSE. This model suggested that modifying factors of sociodemographic variables and knowledge of breast cancer and BSE, may affect the individual's frequency of BSE practice. One modifying factor was shown to be related to HBM variables in the present

study. Having a friend or relative with breast cancer did increase a woman's perceived susceptibility to breast cancer, but susceptibility was not a significant variable in logistical regression analysis in terms of the likelihood of performing BSE with appropriate frequency. Subjects with a friend or relative with breast cancer did not perform BSE more frequently than those who had no such friend or relative.

Results of this and previous studies support the idea that at least some of the HBM variables contribute to a woman's frequency of practice of BSE. This research suggested the variables of perceived barriers and confidence had the greatest effect on BSE practice in rural women. These results were similar to Champion's findings (1987) regarding barriers. In 1993, she added the variable of confidence in the revision of her instrument and found it to be a statistically significant predictor of BSE performance. Knowledge was also examined as a variable, but was not found to be significantly related to the practice of BSE in the current study. Champion's (1987) results were different in knowledge explaining 3% of variance in BSE performance.

A logistical regression analysis was performed to ascertain the relationships between the variables of the HBM and the performance of BSE in rural women. Of the seven

variables that were examined, only self-confidence and perceived barriers were identified as significant predictors. Rural women with lower self-confidence were less likely to practice BSE (O.R.=.86; p=.006) than women who had more confidence in their ability. Moreover, women who perceived more barriers to BSE were significantly less likely to perform regular self-examination than women who perceived fewer barriers (O.R.=1.3;p=.004).

The variable of perceived barriers has consistently been related to frequency of BSE (Champion, 1984, 1985, 1987, 1992; Gray, 1990). In one study (Champion, 1987), the variable of barriers accounted for 22% of the variance for performance of BSE. Gray (1990) showed that 8.3% of the variance in BSE performance was accounted for by barriers to practice.

These findings, along with those in the present study suggest that nurses need to help patients identify barriers that may prevent women from practicing BSE on a monthly basis. Issues related to barriers may include embarrassment, time, fear, lack of mobility or sensitivity related to age or illness, and difficulty remembering to do monthly exams. These issues have all been identified in past studies as factors in decreasing BSE practice among women.

The variable of confidence was included in Champion's

(1993) research instrument due to significant associations between BSE and self-efficacy (Brailey, 1986). Confidence was found to increase the odds of women practicing BSE in this study. Champion (1989) also found confidence to have significant correlations with intent ($r=.37$; $p\leq .0001$), frequency ($r=.38$; $p\leq .001$), and proficiency ($r= .37$; $p\leq .0001$) of BSE.

In contrast to Gray's (1990) research that found that 12.4% and 7% of the variance in BSE were explained by benefits and health motivation respectively, the current study did not find these variables to be significantly related to BSE frequency. A positive significant relationship between knowledge scores and practice of BSE was reported by Gray (1990). Total knowledge scores were similar in this study, but were not significantly related to BSE practice. Champion (1985) also found high knowledge scores did not significantly affect the frequency of BSE. The remaining HBM variables that were measured contributed little of significance to BSE practice in this study.

In conclusion, the HBM was helpful in pointing out certain aspect that may have an impact on the practice of BSE in rural women. Perceived barriers and self-confidence in BSE were found to be significant in a woman's performance of this important health practice. These variables could be

investigated alone to obtain what could be helpful information.

Limitations

Several areas exist that may present possible limitations to this particular study. Ninety-one percent of the respondents in this study were white and selected non-randomly. The population was a group of rural women over 40 years of age who participated in a health screening program, therefore they already show an interest in their breast health. The screening program covers 10 counties in a rural mid-western state and the population ratio differs in each county with pockets of varying minorities.

The sample size included 127 women out of 181 subjects who were offered the opportunity to fill out the questionnaire. The sample size could present limitations for the study with the number of variables addressed. A convenience sample was used in this study instead of random sampling due to time constraints and availability of participants.

The length of the questionnaire may have been a limitation because it contained a total of 61 questions. Many of the subjects took 15 to 20 minutes to complete the survey while they were waiting for their examinations. Some questionnaires had questions that were left unanswered; this

could have been due to lack of understanding, time barriers, or just human error since the questionnaire had numerous questions.

Limitations from Champion (1987) were addressed by Champion's (1993) revision of her research instrument that was used in this study. Gray (1990) also found a limitation in only exploring the frequency, but not the proficiency of BSE so no generalizations could be made regarding proficiency.

The knowledge portion of the questionnaire was not found to be significant to BSE practice in this study. Many women questioned the answers to the questions asked regarding breast cancer and BSE. They question the statistics on how many women would get breast cancer in their lifetime. This section seemed to be outdated and some of the questions/answers have changed over time. These questions could be reformulated to increase the value of the measurement. A valid knowledge measurement may have been lost in the translation from Champion's (1984) knowledge scale to the revised knowledge scale that was used by Gray (1990) and in this study.

Nursing Implications

The value of BSE is key to secondary prevention, but it cannot prevent breast cancer. Nurses need to continue to

educate women regarding breast health and promote preventative aspects of health care. The prevention arena is continually identified with BSE, CBE, and mammography as primary detection methods for breast cancer. BSE is identified as an inexpensive, personal activity that has the potential for finding lumps in the breast at an early stage. Nurses are in the position to educate the public on health issues. They can encourage the general public to follow a healthy lifestyle and should be actively involved in doing so.

Staying healthy has become a major shift in the health care field. Wellness promotion with diet, exercise, and the prevention and early detection of disease is encouraged. BSE should be included in these healthy behavior practices. Increased awareness in breast cancer has helped to peak women's concerns about and interest in their own breast health. Nurses have an obligation to encourage and educate women in BSE and breast health behaviors. Educational programs should stress actual early detection of breast cancer in an attempt to decrease the fear and anxiety women may have. Nursing assessment needs to examine the proficiency with which BSE is practiced.

Results of this study suggest that women who practice BSE are more motivated and confident in performing BSE than

the non-practicing women. Women who performed BSE monthly were also the most confident about their skills. Age was not a significant determinant in BSE practice, although data supported a relationship between age and some of the HBM variables. As a woman's age increased she expressed the belief that breast cancer was less serious, and that there were fewer benefits of and more barriers to BSE.

The HBM variable barriers is a constant in much of the research. Perceived barriers to performing BSE have been identified and should be an important part of breast health education programs. A woman's perceived barriers need to be assessed on an individual basis and dealt with accordingly. There is also a need to increase a woman's self-confidence in performing BSE on a monthly basis.

Recommendations for Further Research

Further research needs to be performed on the HBM as it relates to BSE. Definitions for barriers and how they can be minimized and managed at a personal level need to be established. Analysis on various age groups and the impact of BSE education on practice and proficiency would be appropriate. If women feel less susceptible as they get older, are they being properly informed of the increased risk of breast cancer as one gets older?

This study used a convenience sample with limited

ethnic diversity. It would be helpful to obtain a random sample and strive for an increase in the minority population numbers. A larger number of subjects may also prove to be helpful with the number of variables that are measured with the instrument in this study. Additionally, it would be appropriate to compile and test new knowledge questions and include updated knowledge to reflect a women's understanding of breast cancer and BSE. This may help evaluate what needs to be included in her personal plan of care.

As health care continues to focus on living a more healthy lifestyle to help decrease the chance of disease, education will continue to be an important part of a nurse's daily activity. Women need to know what they can do to help keep themselves healthy and to detect any changes at the earliest possible time. BSE should be taught along with individualized assessments of each woman's perceived barriers and self-confidence in BSE by all health care providers to increase the early detection of breast cancer.

APPENDIX A

Permission to use Breast Self-Examination Questionnaire

INDIANA UNIVERSITY



February 3, 1997

SCHOOL OF NURSING

Joni Erlewein, RNC, BSN
PO BOX 77
Hesperia, MI 49421

Dear Ms. Erlewein,

Enclosed please find a copy of my Health Belief Model and related materials. You have my permission to use these materials as long as you cite my work and send me a copy of completed results.

Sincerely,

A black rectangular box redacting the signature of Victoria L. Champion.

Victoria L. Champion, RN, DNS, FAAN
Professor and Associate Dean for Research

Enclosure(s)

instr.ltr/mh

CENTER FOR NURSING RESEARCH

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*Located on the campus of
Indiana University
Purdue University
Indianapolis*

APPENDIX B

Breast Self-Examination Questionnaire

BREAST SELF-EXAMINATION QUESTIONNAIRE

I AM INTERESTED IN YOUR BELIEFS ABOUT BREAST CANCER AND BREAST SELF-EXAMINATION(BSE). THERE ARE NO RIGHT OR WRONG ANSWERS. WOMEN HAVE BEEN THROUGH DIFFERENT EXPERIENCES THAT WILL INFLUENCE HOW THEY FEEL. CIRCLE THE ANSWER THAT BEST EXPLAINS YOUR FEELINGS.

1. It is extremely likely I will get breast cancer in the future.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
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2. I feel I will get breast cancer in the future.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
-------------------	----------	---------	-------	----------------

3. There is a good possibility I will get breast cancer in the next 10 years.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
-------------------	----------	---------	-------	----------------

4. My chances of getting breast cancer are great.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
-------------------	----------	---------	-------	----------------

5. I am more likely than the average woman to get breast cancer.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
-------------------	----------	---------	-------	----------------

6. The thought of breast cancer scares me.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
-------------------	----------	---------	-------	----------------

7. When I think about breast cancer, my heart beats faster.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
-------------------	----------	---------	-------	----------------

8. I am afraid to think about breast cancer.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
-------------------	----------	---------	-------	----------------

This instrument was designed by Victoria Champion, PhD, and was revised in 1993. It was used with her written permission.

9. Problems I would experience with breast cancer would last a long time.
- | | | | | |
|-------------------|----------|---------|-------|----------------|
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|-------------------|----------|---------|-------|----------------|
10. Breast cancer would threaten a relationship with my boyfriend, husband, or partner.
- | | | | | |
|-------------------|----------|---------|-------|----------------|
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|-------------------|----------|---------|-------|----------------|
11. If I had breast cancer my whole life would change.
- | | | | | |
|-------------------|----------|---------|-------|----------------|
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|-------------------|----------|---------|-------|----------------|
12. If I developed breast cancer, I would not live longer than 5 years.
- | | | | | |
|-------------------|----------|---------|-------|----------------|
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|-------------------|----------|---------|-------|----------------|
13. When I do breast self-examination I feel good about myself.
- | | | | | |
|-------------------|----------|---------|-------|----------------|
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|-------------------|----------|---------|-------|----------------|
14. When I complete a monthly breast self-examination I don't worry as much about breast cancer.
- | | | | | |
|-------------------|----------|---------|-------|----------------|
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|-------------------|----------|---------|-------|----------------|
15. Completing breast self-examination each month will allow me to find lumps early.
- | | | | | |
|-------------------|----------|---------|-------|----------------|
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|-------------------|----------|---------|-------|----------------|
16. If I complete breast self-examination monthly during the next year I will decrease my chance of dying from breast cancer.
- | | | | | |
|-------------------|----------|---------|-------|----------------|
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|-------------------|----------|---------|-------|----------------|
17. If I complete breast self-examination monthly I will decrease my chances of requiring radical disfiguring surgery if cancer occurs.
- | | | | | |
|-------------------|----------|---------|-------|----------------|
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|-------------------|----------|---------|-------|----------------|

18. If I complete monthly breast self-examination it will help me find a lump which might be cancer before it is detected by a doctor or nurse.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
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19. I feel funny doing breast self-examination.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
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20. Doing breast self-examination during the next year will make me worry about breast cancer.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
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21. Breast self-examination will be embarrassing to me.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
----------------------	----------	---------	-------	-------------------

22. Doing breast self-examination will take too much time.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
----------------------	----------	---------	-------	-------------------

23. Doing breast self-examination will be unpleasant.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
----------------------	----------	---------	-------	-------------------

24. I don't have enough privacy to do breast self-examination.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
----------------------	----------	---------	-------	-------------------

25. I know how to perform breast self-examination.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
----------------------	----------	---------	-------	-------------------

26. I am confident I can perform breast self-examination correctly.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
----------------------	----------	---------	-------	-------------------

27. If I were to develop breast cancer I would be able to find a lump by performing breast self-examination.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
----------------------	----------	---------	-------	-------------------

28. I am able to find a breast lump if I practice breast self-examination alone.
 Strongly Disagree Neutral Agree Strongly
 Disagree Agree
29. I am able to find a lump which is the size of a quarter.
 Strongly Disagree Neutral Agree Strongly
 Disagree Agree
30. I am able to find a lump which is the size of a dime.
 Strongly Disagree Neutral Agree Strongly
 Disagree Agree
31. I am able to find a lump which is the size of a pea.
 Strongly Disagree Neutral Agree Strongly
 Disagree Agree
32. I am sure of the steps to follow for breast self-examination.
 Strongly Disagree Neutral Agree Strongly
 Disagree Agree
33. I am able to identify normal and abnormal breast tissue when I do breast self-examination.
 Strongly Disagree Neutral Agree Strongly
 Disagree Agree
34. When looking in the mirror, I can recognize abnormal changes in my breast.
 Strongly Disagree Neutral Agree Strongly
 Disagree Agree
35. I can use the correct part of my fingers when I examine my breasts.
 Strongly Disagree Neutral Agree Strongly
 Disagree Agree
36. I want to discover health problems early.
 Strongly Disagree Neutral Agree Strongly
 Disagree Agree
37. Maintaining good health is extremely important to me.
 Strongly Disagree Neutral Agree Strongly
 Disagree Agree

38. I search for new information to improve my health.
 Strongly Disagree Neutral Agree Strongly
 Disagree Agree
39. I feel it is important to carry out activities which will
 improve my health.
 Strongly Disagree Neutral Agree Strongly
 Disagree Agree
40. I eat well balanced meals.
 Strongly Disagree Neutral Agree Strongly
 Disagree Agree
41. I exercise at least 3 times a week.
 Strongly Disagree Neutral Agree Strongly
 Disagree Agree
42. I have regular check-ups even when I am not sick.
 Strongly Disagree Neutral Agree Strongly
 Disagree Agree

APPENDIX C

Knowledge Questionnaire

These questions measure your knowledge of breast self-examination and breast cancer please check one answer.

43. When is the best time during a menstrual cycle(period) to examine the breasts?
1. One week before your period starts
 2. One week after your period
 3. During your period
 4. Two weeks after your period
44. A woman should examine her breasts while in the shower.
1. False, she might miss lumps.
 2. False, the heat of the water could cause the breasts to swell
 3. True, more lumps are visible when the breasts are wet.
 4. True, the hand glides more easily over the skin when wet.
45. Are a woman's right and left breast the same size?
1. No, during adolescence there is usually a difference.
 2. Yes, if a woman is fully developed, the breasts are the same size
 3. No, variation in size is normal.
 4. No, many women take hormones which could cause unequal size.
46. Under which of the following circumstances should a woman see her doctor at once?
1. If there is a firm ridge on the lower curve of the breast.
 2. If the breasts are not exactly the same size.
 3. If she accidentally hits her breasts.
 4. A discharge from the nipple is noticed(does not include milk).
47. Which of the following is a true statement?
1. A breast should be examined while lying on the side.
 2. Breasts should be examined twice a month.
 3. Breasts should be examined in a clockwise manner, circling at least three times.
 4. A woman should not examine her breasts in the shower.
48. What are the chances that a woman will have breast cancer within her lifetime?
1. Less than 10 in 100.
 2. About 15 in 100.
 3. About 20 in 100.
 4. About 25 in 100.

49. Which of the following is true regarding age and breast cancer.
1. Risk is greatest under age 35.
 2. Risk increases with age after 35.
 3. Age is not related to risk.
50. In which of the following groups would women be at greatest risk for developing breast cancer?
1. Women who have a family history.
 2. Women who smoke cigarettes.
 3. Women who have several sex partners.
 4. Women who breast-feed.
51. Which of the following statements is true?
1. The majority of all lumps in the breast are cancerous.
 2. About half of all breast lumps are cancerous.
 3. The majority of breast lumps are NOT cancerous.
52. If breast cancer is discovered in a small area the 5 year survival rate is:
1. Very good.
 2. Good.
 3. Moderate.
 4. Poor.
 5. Very poor.

APPENDIX D

Demographic Questionnaire

BACKGROUND INFORMATION FOR STUDY: Please answer the following questions so we can describe the study sample.

53. YOUR RACE

1. WHITE 2. AFRICAN AMERICAN/BLACK 3. ASIAN/PACIFIC
ISLANDER 4. AMERICAN INDIAN/ESKIMO/ALEUT 5. OTHER

54. MARITAL STATUS

1. MARRIED 2. NEVER MARRIED 3. WIDOWED 4. DIVORCED
5. SEPARATED

55. EDUCATION Highest grade completed in school

56. YOUR AGE

57. HAVE YOU EVER BEEN DIAGNOSED WITH BREAST CANCER?

1. NO 2. YES IF YES WHEN?(Year)

58. HAVE YOU HAD A FRIEND OR RELATIVE DIAGNOSED WITH BREAST CANCER?

1. NO 2. YES IF YES WHEN?(Year)

59. HOW WERE YOU TAUGHT BREAST SELF EXAMINATION? CHECK ALL THAT APPLY.

1. Never Taught 8. Television
2. Nurse explanation/demonstration 9. Other(Please Specify)
3. Doctor explanation/demonstration
4. Pamphlet
5. Book
6. Radio
7. Film/Videotape

60. HOW OFTEN DO YOU PERFORM BREAST SELF-EXAMINATION(BSE) TO EXAMINE YOUR BREASTS TO SEE IF YOU CAN FIND ANY CHANGES?

1. I do not to this examination
2. More than once a month
3. Monthly
4. Every other month
5. Every 3 to 6 months
6. less than every 6 months

61. WHAT WAS YOUR FAMILY'S INCOME RANGE FOR LAST YEAR?

1. UNDER 10,000 2. 10,000 TO 19,999
3. 20,000 TO 29,999 4. 30,000 TO 39,999

THANK YOU FOR TAKING THE TIME TO PARTICIPATE IN THIS STUDY!

APPENDIX E

Permission from Health Department
Medical Director

DISTRICT HEALTH DEPARTMENT #10

1049 Newell - PO Box 8305

White Cloud, MI. 49349

Phone 616-689-7300 Fax 616-689-7382

I, David Nolan M.D., give my authorization for Joni Erlewein R.N.C., to collect data for her research project, which will complete her Master's degree in Nursing from Grand Valley University.

Participants in the Breast and Cervical Cancer Control Program may be approached to fill out the questionnaire for this research project on a voluntary basis and all results will remain confidential.



David Nolan, MD
Medical Director

24 Oct 97

Date

APPENDIX F

Permission from the Human Research Review Committee
of Grand Valley State University



1 CAMPUS DRIVE • ALLENDALE MICHIGAN 49401-9403 • 616/895-6611

November 24, 1997

Joni Erlewein
P.O. BOX 77
Hesperia, MI 49421

Dear Joni:

The Human Research Review Committee of Grand Valley State University is charged to examine proposals with respect to protection of human subjects. The Committee has considered your proposal, "*Participation of Breast Self-Examination In Rural Women*", and is satisfied that you have complied with the intent of the regulations published in the Federal Register 46 (16): 8386-8392, January 26, 1981.

Sincerely,

A black rectangular box redacting the signature of Paul Huizenga.

Paul Huizenga, Chair
Human Research Review Committee

APPENDIX G

Cover Letter

Joni Erlewein
Box 8305
White Cloud, MI 49349

Dear Cancer Screening Participant:

I would like your help. Women have been given a lot of information on mammograms and breast self-examination in the past year. Your ideas will help nurses with teaching strategies for women regarding breast health. I am a Master's student at Grand Valley State University and will be doing this research as my thesis project.

You have been invited to participate in this study, along with 125 other women because you are here for your cancer screening. Attached to this letter is a survey with questions about breast self-examination and personal health history. If you choose to participate, please take a few minutes before your physical exam to answer these questions and hand your questionnaire to us before you leave today. If questions cause you distress you may stop filling out the questionnaire at anytime and discontinue your participation in the study. Please fill out a postcard before you leave if you would like a summary of the results of this study.

Do not put your name on the questionnaire that way your answers will be anonymous. Your participation in this study is strictly voluntary and your decision to participate or not will not affect your care at the screening clinic. Thank you for helping make me more aware of your knowledge and practice of breast self-examination. If you have any questions about this call me at 1-800-968-7300. If you have questions concerning your rights as a participant in this study you can contact, Paul Huizenga at (616)895-2472.

Sincerely,

Joni L. Erlewein, RNC,BSN
Cancer Screening Nurse
1-800-968-7300

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