

THESIS )



This is to certify that the

thesis entitled THE DIFFERENCES IN REPORTED SYMPTOMS AND/OR RISK FACTORS AND CLINICAL BREAST EXAM FINDINGS IN LOW INCOME WHITE AND BLACK WOMEN

presented by

Afriyie Johnson

has been accepted towards fulfillment of the requirements for

\_ degree in \_\_\_\_\_

MASTER OF SCIENCE IN NURSING

Major professor

1

Date 12-31-91

MSU is an Affirmative Action/Equal Opportunity Institution

**O**-7639

# LIBRARY Michigan State University

# PLACE IN RETURN BOX to remove this checkout from your record. TO AVOID FINES return on or before date due.

DATE DUE	DATE DUE	DATE DUE
TE3 * 12003		
FEB 1 3 2003		
APR 2 4 2003		
JUN 2 3 2003		

1/98 c:/CIRC/DateDue.p65-p.14

# THE DIFFERENCES IN REPORTED SYMPTOMS AND/OR RISK FACTORS AND CLINICAL BREAST EXAM FINDINGS IN LOW INCOME WHITE AND BLACK WOMEN

By

Afriyie Johnson

# A THESIS

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

MASTER OF SCIENCE IN NURSING

College of Nursing

#### ABSTRACT

# THE DIFFERENCES IN REPORTED SYMPTOMS AND/OR RISK FACTORS AND CLINICAL BREAST EXAM FINDINGS IN LOW INCOME WHITE AND BLACK WOMEN

By

#### Afriyie Johnson

This is a descriptive study of 33,873 first-time White and Black participants in a state-subsidized breast screening program for low-income women. This study examined whether there were differences in reported symptoms and/or risk factors and clinical breast exam findings. The data were taken from the Breast and Cervical Cancer Control Program of the Michigan Department of Community Health and were analyzed using frequency and percent with chi-square analysis, t-test analysis and cross tabulation using chi-square analysis.

Four symptoms were examined: lump, skin change, nipple discharge and pain. Five risk factors were also observed: personal history of breast cancer, family history of breast cancer, personal history of breast disease, personal history of breast surgery and hormone use. Results indicate that the vast majority of women of both racial groups had neither symptoms nor risk factors and had normal clincal breast exam findings. If there were abnormal clinical breast exam findings the majority of women from both racial groups reported neither risk factors nor symptoms. If symptoms or risks were reported, White women most often reported risks and Black women most often reported symptoms. The primary risk reported by White women was use of hormones and the primary symptom reported by Black women was breast pain.

Copyright by AFRIYIE JOHNSON 1998 DEDICATION

To my loving parents, Johnny D. and Ida A. Johnson.

#### ACKNOWLEDGEMENTS

First, I wish to express my deep appreciation to my Lord Jesus Christ, who gave me the knowledge and ability which has made it possible to complete this study. I also wish to express my appreciation to the members of my committee, whose assistance was invaluable in completing this thesis. Thanks to Gwen Wyatt, Ph.D., for her willingness to accept the responsibilities of committee chairperson, which involved guidance and extraordinary scholarly efforts to help me complete this project. Additional thanks to committee members Rachael Schiffman, Ph.D., and Brigid Warren, M.S.N., for their direction, encouragement and support. My thanks to the Michigan Department of Community Health for allowing me to use their data set. I thank Paulette Valliere, Ph.D., and Carol Garlinghouse, M.S.N. for their support of my use of this data as well as sincere thanks to Zhiwei Zhu, Ph.D. for running the analysis for this thesis. Finally, I wish to thank my parents and prayer partners for their prayers and support during this effort.

# TABLE OF CONTENTS

LIST OF TABLES	iii
LIST OF FIGURES	ix
INTRODUCTION	. 1
Statement of Purpose	. 1
Statement of the Problem	2
Breast Self Exam (BSE)	3
Risk Factors for Breast Cancer	3
Clinical Breast Exam	4
Summary of Study Concents	5
Research Questions	6
CONCEPTUAL FRAMEWORK	7
The Health Belief Model	.7
Conceptual Definitions	11
Individual Perceptions	11
Perceived suscentibility	11
Risk factors	11
Symptoms	12
Perceived severity	12
CBF findings	12
Modifying Factors	12
Demographic Variables	12
White	12
Black	13
	13
Race and Socioeconomics	14
Risk Factors	17
Symptoms	18
Summary of Literature	20
METHODS	21
Samle	22
Instruments	23
Operational Definitions	24
Data Collection and Analysis	26
	-0

Confidentiality of Human Subjects28Assumptions and Limitations28
RESULTS
DISCUSSION
Demographics
Risk Factors
Symptoms
Severity Category
Interrelationship of Concepts
Susceptibility by race and severity
Implications for APNs
Education
Research
CONCLUSION
APPENDIX A
APPENDIX B
APPENDIX C
LIST OF REFERENCES

# LIST OF TABLES

Table	1	Demographics of Sample	31
Table 2	2	Percent and Frequency of Reported Risk Factors by Race	32
Table 1	3	Percent and Frequency of Total Number of Reported Breast Cancer Risk Factors	33
Table 4	4	T-test for Independent Samples of Risks	34
Table	5	Percentage and Number of Reported Symptoms by Race	34
Table	6	Percent and Frequency Table of Total Number of Reported Breast Symptoms	36
Table '	7	T-test for Independent Samples of Symptoms	36
Table	8	Cross Tabulation of Clinicla Breast Exam Findings by Race	37
Table 9	9	Cross Tabulation of Race and Clinical Breast Exam Findings (CBE) by Susceptibility Category (Symptoms and/or Risk Factors	38

# LIST OF FIGURES

•

•

Figure 1	The Health Belief Model	8
Figure 2	Adapted Health Belief Model	10

#### **INTRODUCTION**

Cancer is the second leading cause of death in the United States, surpassed only by heart disease. One in every four deaths is directly or indirectly attributable to cancer. Cancer is a group of diseases characterized by a disturbance in the normal mechanism that controls the growth and proliferation of cells. If the uncontrolled spread of these cells go unchecked the result is the death of the patient (American Cancer Society, 1997).

As age increases so does the risk for the development of cancer. Most cases of cancer occur in adults during mid-life and later years. Lung cancer is the leading cause of death by cancer in both males and females; however, the leading site of new cancer cases for males is the prostate and for females is cancer of the breast (American Cancer Society, 1997).

It has been estimated that in 1997 180,200 women will be newly diagnosed with invasive breast cancer and 43,900 will die from breast cancer in this country. The most recent data on mortality trends in breast cancer show both progress and failure. Mortality from breast cancer is decreasing among White women, while increasing in Black women. Between 1989 and 1992, mortality rates among White women declined by approximately 5.5%, while rates among Black women increased 2.6%. Researchers have speculated that this trend has more to do with early detection and better treatment than prevention (American Cancer Society, 1997).

#### Statement of Purpose

This research study focused on the early detection of potential breast cancer in women of low socioeconomic groups from two races. The purpose of this study was to

assess if a relationship existed between reported risk factors and/or symptoms of breast cancer and positive Clinical Breast Exam (CBE) findings when comparing White women and Black women when both are of lower socioeconomic groups.

#### Statement of the Problem

White women in the United States continue to be the group in which cancer of the breast is most often found (American Cancer Society, 1997). However, information from the Surveillance, Epidemiology, and End Results (SEER) Program and other sources indicate that Black women and other minorities from low socioeconomic backgrounds are being diagnosed at more advanced stages of the disease than their White counterparts (National Cancer Institute, 1989, Vernon, Tilly, Neale and Steinfeld, 1985; Richardson et al., 1987; Vernon et al., 1992). These data are of interest to the health care, social and political arenas because they may give some indication of how to intervene to promote earlier diagnoses. There is no identified prevention for breast cancer, other than the role that the drug Tamoxifen plays as an adjunctive therapy in the long-term prevention of cancer (Jordan V., 1995 & Crabbe W., 1996; Noguchi, M., Rose, D., & Miyazaki I., 1996). The most significant factors in the control of primary breast cancer are early detection and intervention, namely, early screening with follow up.

Early detection has four dimensions: 1) recognition of symptoms of breast cancer through Breast Self Exam (BSE), 2) identification of risk factors that may predispose a person to breast cancer, 3) identification of signs (anomalies) of breast cancer through CBE and 4) mammography. Although mammography is an important portion of the

screening process for breast cancer, this aspect of the screening was not considered in the present research.

# Breast Self Exam (BSE)

The most common initial symptom of breast cancer is a painless mass identified by the woman herself through BSE. Other symptoms that may alert an individual to some change in the mammary gland include nipple discharge, nipple or skin changes such as a unexpected inversion of a nipple, dimpling of the skin on the breast, asymmetrical thickening of the skin and/or pain.

#### Risk Factors for Breast Cancer

An important part of the early detection process is the woman's medical history of breast cancer risk factors. There are two categories of risk factors that contribute to the incidence of cancer. Lifetime risks are those that refer to the likelihood that any individual, during her lifetime, will develop or die from breast cancer. In the United States, women have a 1 in 8 lifetime risk for developing breast cancer (American Cancer Society, 1996b). Relative risk on the other hand, is the strength of the relationship between risk factors and a particular cancer. When looking at breast cancer, relative risk includes the development of breast cancer in women with certain environmental, hereditary and/or personal risks when compared to women without these risks.

In practical terms, it is often difficult for adult women to alter their relative risk factors for breast cancer. Some of the factors that have been hypothesized as contributing to the development of breast cancer include: 1) Genetics--women who have a strong family history for breast cancer, such as those whose mothers and/or sisters had breast

cancer; 2) Age--women 40 or older; 3) Personal history of breast disease--included women who have fibrocystic disease, have had prior breast cancer and/or breast surgery; 4) Hormonal factors--included being 30 years old or older at first full-term pregnancy, and/or hormone replacement therapy (National Cancer Institute, 1994). These contributing risk factors are most often outside the woman's control, thereby making them, with a few exceptions, impossible to prevent. Risk factors aside, it should be recognized that approximately 75% of women with newly diagnosed breast cancer had no identifiable risk factors (Centers for Disease Control and Prevention, 1994).

#### Clinical Breast Exam

Signs or symptoms are those data which are either detectable by an observer, experienced by an individual, or can be tested by using an accepted standard (American Cancer Society, 1997). The CBE and the screening mammogram are the practitioner's two most frequently utilized methods of initial screening for objective data or signs of breast disease (Centers for Disease Control and Prevention, 1994). Screening is the attempt to detect unsuspected disease in asymptomatic patients. It is therefore important that the practitioner be skilled in identifying breast signs. For the purpose of this study the CBE means the performance of a sitting and supine breast examination which includes inspection and palpation of the breast as well as the axillary and supraclavicular nodes by a skilled clinician.

The mammogram is an important and valuable tool for breast cancer screening. However, the subject of mammography in breast screening will not be addressed in this research.

#### Summary of Study Concepts

There are a number of limitations found in the literature. A major limitation of current and past research is that breast cancer screening in White and Black women was examined in women from vastly disparate economic backgrounds. It has been proposed that one may find fewer differences between the two racial groups if their social and economic demographics are similar (Vernon et al., 1992). In the literature low income was found to be related to more advanced stages of breast cancer at detection in minority women. Socioeconomic status therefore, may imply a woman's ability to access early screening (Dayal, Power & Chiu, 1982; Bassett & Krieger, 1986).

Research using the Health Belief Model has shown that when the benefits of medical intervention equal or exceed the barriers, the predictability or likelihood of action will be more favorable (Champion, 1991). Irrespective of race, if two groups of women have similar barriers to breast screening--e.g., low socioeconomic status--they may also have similar motivating factors which lead them to seek out breast cancer screening.

As an advance practice nurse (APN) practicing in primary care, it is important to be aware that a number of factors may be involved in whether a client seeks out breast screening or not. When the APN is cognizant of factors that may hinder his/her clientele from accessing screening services (e.g., a lack of knowledge or money, fear of the unknown, lack of awareness of risk and/or symptoms), the APN is better able to assist the client through education and facilitating contact with screening services.

This study will look at the differences in risk factors, symptoms and CBE findings between White and Black women of similar low socioeconomic status who attended the

Breast and Cervical Cancer Control Program (BCCCP) in participating Michigan counties.

#### Research Questions

This study addressed whether White women and Black women who came from comparable low socioeconomic backgrounds and attended the BCCCP, had differences in reported risk, symptoms and CBE findings. Past research relied mainly on middle-class White women. This research fills a need by examining differences that race may or may not play among women from lower socioeconomic backgrounds. To better understand the role that reported risk factors and/or reported breast symptoms play in whether or not there are positive CBE findings, this research addressed the following questions:

1) What percentage of White and Black women report each risk factor for breast cancer?

2) Is there a statistically significant difference in the number of risk factors for breast cancer reported by White and Black women?

3) What percentage of White and Black women report each symptom related to breast cancer?

4) Is there a statistically significant difference in the number of symptoms reported by White and Black women?

5) Is there a proportional association between positive and negative CBE findings in White and Black women?

6) Is there a proportional association between reported risk factors and/or symptoms and CBE findings in the White and Black women?

#### CONCEPTUAL FRAMEWORK

#### The Health Belief Model

This research was guided by specific concepts of the Health Belief Model (HBM). The HBM is a predictive model; however, this study examined selected relationships within the model rather than the predictive or outcome nature of the model as a whole. According to the original HBM, health actions are not likely to be taken unless or until the individual has certain beliefs about the recommended health actions.

Rosenstock, Hochman and Kegels developed the HBM in the early 1950s, influenced heavily by Kurt Lewin (Becker & Marshall, 1974). This study utilized the HBM due to the fact that the BCCCP was designed around certain concepts of the HBM (Figure 1).

According to the HBM, there are three concept categories: 1) "Individual Perceptions," under which one may identify factors that lead an individual to the feeling of perceived susceptibility to a given disease and perceived seriousness or severity of a given disease. 2) "Modifying Factors" include factors that may alone or in combination with individual perceptions lead to a perceived threat of a disease (e.g., demographic variables and cues to action), which are external reminders from individuals, media etc. may also prompt an individual to action. 3) The final category is "Likelihood of Action." When the individual perceptions of susceptibility and severity, in combination with modifying factors, are sufficiently significant, some decision about actions that need to be taken will be made. If the perceived benefits of the action outweighs the perceived



Charles Slack

barriers to the actions then there is an increased likelihood of taking recommended preventative health action.

This research was a retrospective study in which the instruments used for collecting data made no explicit inquiry about individual perceptions. The questionnaire used in this study asked about risk factors and symptoms. It did not identify the risks and symptoms as perceived susceptibility and/or severity factors. This study concentrated on implied individual perceptions and modifying factors, specifically perceived susceptibility, perceived severity and demographic variables (see Figure 2).

The HBM was adapted and certain of its concepts were used to categorize and explore how reported risk factors, symptoms and CBE findings of White and Black women from low socioeconomic groups interacted. In the modified model the concept of individual perceptions had two subdivisions: 1) perceived susceptibility which included reported risk factors and symptoms and 2) perceived severity that included CBE findings. In this study these perceptions were assumed to be influenced by one modifying factor, the demographic variable race, i.e., being White or Black. The study inquired whether there were differences in the reported risk factors or symptoms for White women versus Black women when both groups were of low socioeconomic status.

In the modified HBM (Figure 2) the concepts of susceptibility and severity represented different perceptions. Susceptibility is the individual's perception, personal belief and/or knowledge, about her risks and/or symptoms. Severity is a validated perception (meaning that there is expert corroboration with personal belief or knowledge). The CBE finding provides objective external information from the APN. If



Figure 2: Adapted Health Belief Model

the CBE finding is revealed to the individual as positive (abnormal), this knowledge may then lead the individual to move from a perceived susceptibility (an awareness of symptoms and/or risks) to a validated perception, which includes the severity factors.

#### Conceptual Definitions

For the purposes of this study the following concepts and variables were used and are defined as follows:

# Individual Perceptions

Individual perceptions are subjective beliefs that an individual has concerning breast cancer. Under the category of individual perceptions there were two areas or concepts to be observed, perceived susceptibility and perceived severity. <u>Perceived susceptibility</u>. Perceived susceptibility to breast cancer is what an individual experiences, which results in the feeling that she may have a predisposition to breast cancer. However, in the instrument used for this study there was no direct inquiry as to whether the individual perceived that the questions asked were reflective of whether or not the individual recognized and understood that the areas inquired about were indeed identified by that individual as risks or symptoms. This is an assumption of this research. In this study the perceived susceptibility factors included five risk factors and four symptoms.

<u>Risk factors.</u> Risk factors are those factors that may lead an individual to feel that she may have a predisposition to breast cancer. They include: 1) personal cancer history, 2) personal history for breast surgery (biopsy, cancer surgery, breast reduction surgery, breast implants or other breast surgery), 4) personal history of benign breast disease (diagnosed by a primary care provider), 5) family cancer history, such as a firstgeneration relative with breast cancer (mother and/or sister) and/or 5) the use of hormone replacement therapy.

<u>Symptoms.</u> Symptoms are self-reported changes in the breast, which are perceived by the individual as possible cancer including: 1) a lump (a solid or cystic mass in the breast tissue, axilla or chest wall located by touch), 2) nipple discharge (liquid expressed from or discharging spontaneously from the nipple), 3) skin change (dimpling in the skin of the breast, skin and/or nipple retraction or scaling) and/or 4) pain. <u>Perceived severity.</u> Perceived severity is those findings that may lead an individual to feel at particular peril of having a potentially terminal and financially devastating illness.

<u>CBE findings.</u> CBE findings are the severity factors that are identified or verified by the APN through objective assessment and reported to the individual being examined, who then determines for herself whether or not she deems the finding as severe. Abnormal CBE findings include any one or more of the following: 1) an asymmetrical thickening of the breast tissue; 2) any smooth, mobile round or oval mass; 3) an irregular, firm, mobile mass--indeterminate (requiring further evaluation); and/or 4) an irregular, hard, fixed mass.

#### Modifying Factors

# Demographic Variables

Demographic variables are those variables that describe the participants within this study. They include women 40 years old or older who fall at or below 250% of the poverty level and who are either White or Black. <u>White.</u> White means being of the majority racial group, having European ancestry and most often identifiable by having Caucasian features. Being White comes with certain cultural values, beliefs and attitudes, which are derived from their cumulative heritage and which differ from those of Black women.

<u>Black.</u> Black means being of a minority racial group, having African ancestry and most often identifiable by having Negroid features. Being Black comes with certain cultural values, beliefs and attitudes, which are derived from their cumulative heritage and which differ from those of White women.

In summary, several key elements of the HBM were investigated in this study. Individual perceptions were those elements that lead an individual to perceive that she may be in danger of a given disease, in this case, breast cancer. These perceptions include the category of perceived susceptibility to breast cancer, i.e., the specific risk factors and symptoms under study. The category of perceived severity includes CBE findings, namely the abnormal findings. Modifying factors are those that affect an individual's predisposition to take certain health actions based on her belief about the actions recommended. In this study race was the only demographic variable under study. The demographic variables in combination with perceived susceptibility and perceived severity may give insight into the differences between White and Black women of lower socioeconomic status to terms of breast cancer screening.

#### LITERATURE REVIEW

Current literature has not directly addressed the relationship between risks, symptoms and CBE findings. However, a number of studies looked at race, income, and

the stage of cancer at diagnosis; race and screening practices (attendance at screening); income and screening practices; and symptoms, screening practices, and risk factors (American Cancer Society, 1996b; American Cancer Society, 1995; Bassett & Krieger, 1986; Dayal, Power & Chiu, 1982; Burack & Liang, 1989; Farley & Flannery, 1989; French et al., 1982; Maclean, Sinfield, Klein & Harnden, 1984; Roberts, Alexander, Elton, & Rodgers, 1990; Well & Horm, 1992; Johnson & Murata, 1988; Lane & Fine, 1983; National Cancer Institute (NCI), 1989; Rutledge, Hartmann, Kinman, & Winfield, 1988; Swanson et al., 1993; Vernon et al., 1992).

The literature in this review came from three related disciplines. The majority of the literature came from nursing, along with medicine and public health.

# Race and Socioeconomics

A number of studies have addressed breast cancer screening practices (receiving CBEs and mammograms) of different racial groups. There are a number of factors that may or may not influence whether an individual chooses to engage in these activities. A recurrent theme in the literature is that minority women, i.e., Black and Hispanic, in the United States are consistently found to be diagnosed during later stages of the disease and subsequently have higher mortality rates than their White counterparts, who have higher incidence rates (American Cancer Society, 1996b; American Cancer Society, 1995; Farley & Flannery, 1989; National Cancer Institute (NCI), 1989; Swanson et al., 1993; Vernon et al., 1992). The rationale given for these mortality and morbidity rates was attributed to a number of factors, one of which was income or socioeconomics.

An important factor associated with mortality from breast cancer, irrespective of race, was income (Vernon et al., 1992). Studies have shown that the most significant link between Black women and mortality from breast cancer is low socioeconomic resources (Bassett & Krieger, 1986; Dayal, Power & Chiu, 1982). There are a number of studies that either directly or indirectly cite the prohibitive cost of breast cancer screening (primarily mammography) as a barrier to screening, irrespective of race (Burack & Liang, 1989; Johnson & Murata, 1988; Rutledge, Hartmann, Kinman, & Winfield, 1988; Lane & Fine, 1983; Vernon et al., 1992). Because more Black women are of lower income, it was found that low income was often the rationale given for not seeking screening or following through with recommended screening (CBE and mammograms) (Ansell, Whitman, Lipton & Cooper, 1994; Mettlin, 1992).

A positive relationship was found between higher education, income levels, and cancer screening, as well as the use of other preventative services (Vernon et al., 1992). A significant limitation found in the majority of cancer screening studies was the over representation of women with higher education and subsequent higher family incomes from all racial groups (Vernon et al., 1992). In addition, a disproportionate amount of the research that looked at breast cancer screening and the HBM was performed among middle-class White women (Brown & Williams, 1994; Champion, 1988; Champion, 1991; Champion, 1993, 1994). On the other hand, a number of studies show that even when screening services were offered to the economically disadvantaged to reduce financial barriers, regardless of race, women still did not avail themselves of services

when they were asymptomatic (French et al., 1982; Maclean, Sinfield, Klein & Harnden, 1984; Roberts, Alexander, Elton & Rodgers, 1990; Well & Horm, 1992).

Only one recent study looked at both race and socioeconomic factors (Wells & Horm, 1992). In this study it was found that when White-Black differences in socioeconomic status were small, there were only small differences in whether or not the person had a more advanced stage of breast cancer when first diagnosed (screened) (Wells & Horm, 1992). The study utilized the Surveillance, Epidemiology, and End Results (SEER) Program data from the San Francisco-Oakland, Detroit and Atlanta metropolitan areas. These locations were chosen because they were census traced and therefore could be matched with census-tract indicators of socioeconomic status and because they have sufficiently large numbers of Blacks for analysis.

The SEER sample consisted of 18,113 White and 2,861 Black women with invasive breast cancer. After eliminating those cases identified incidentally at autopsy, there were 17,949 invasive and 917 in situ cases among White women and 2,838 invasive and 126 in situ cases among Black women. The mean family income criteria was based on 200% of the poverty level for a family of four in 1979, which was \$15,000.

The results of this study were that Black women with both lower educational levels and income had a higher stage of breast cancer than White women with comparable education and income. There were 45.7% of Black women diagnosed at a curable localized and in situ stage, while 52.1% of White women were at the same stages. Greater than 11% of Black women and less than 7% of White women had metastatic cancer beyond localized or regional into distant stages.

In both groups of women there was a trend toward a less advanced stage of cancer when there was higher education and income. An interesting trend emerged when the researchers looked at women who were from higher educational and income strata. Among the higher educated and income strata, Black women were found to be diagnosed at a slightly lower stage of disease than were White women. In summary, failure to avail oneself to screening probably has more to do with education and economics than race (Well & Horm, 1994).

#### **Risk Factors**

Few studies on the topic of risk factors for breast cancer were found. However, Mettlin (1992) cited a number of older articles that referred to individual risk factors. Mettlin (1992) assessed 11 risk factors for breast cancer. In his review of the literature he found that the most important risk factors for breast cancer were age (older than 50) and gender (female).

As age increases so does the risk for breast cancer. Risk areas associated with age included early menarche and late menopause. A 30% reduction of risk of breast cancer occurred for women who experienced menopause at 45 or younger than women who experienced it at 50 and older. Late age at first full-term pregnancy (>30 years) showed an increased breast cancer risk association. There was an estimated 3.5% increase in risk with each year of childbearing delay (Mettlin, 1992).

Second to being 50 years of age or older and female, the most significant risk factors were found in women who already have a history of breast cancer or other cancers, and those with first-degree relatives with breast cancer (Mettlin, 1992).

Although race was another risk factor associated with breast cancer, according to Mettlin (1992), it was included as a minor risk along with such risks as exogenous hormones, lactation, parenchymal patterns, benign breast disease and socioeconomic status.

# Symptoms

Symptoms of breast cancer and care-seeking behavior were the subjects that a number of investigators have studied in recent years (Coates, et al., 1992; Lauver, 1994; and Vernon, Tilley, Neal & Steinfeldt, 1985).Twenty to 26% of women wait 2 to 3 months before seeking medical care after discovering breast cancer symptoms.

Lauver (1994) cites two recent studies (Lauver & Ho, 1993; Richardson et al., 1992) which indicated that even when controlling for socioeconomics Black and Hispanic women with breast cancer symptoms sought out care later than did White women. Both of these studies had a greater number of White participants than minority women. Another study, which used a larger national sample, found that when looking at only Black women and White women with similar economic background, both groups sought similar care (Coates et al., 1992). In this study the differences in seeking health care was only two days (White women being more prompt). These differences were neither statistically nor clinically significant. In other related studies, when Black and White women were compared, Black women underestimated the prevalence of cancer, survival rates, effectiveness of treatment and preferred not to know that they had cancer (Lauver, 1992).

Lauver (1994) addressed the care-seeking behavior of White and Black women with breast cancer symptoms. A breast-surgery clinic in a large teaching hospital which

provides care to an indigent clientele was the setting. The research sample consisted of 135 individuals 19 to 76 years old with an average age of 37 years. Caucasians made up 47% and African Americans made up 53% of the sample. The median family income was \$12,000.

The results of this research revealed that 39% of those who participated had contacted health-care systems in less than seven days after finding a symptom. The cumulative frequencies revealed that 49% of the participants connected with health care within 14 days; 61% within one month; 76% by three months, 85% by six months and 96% by twelve months. In this study there were no demographic or clinical factors that correlated with care seeking, including race, family history of breast cancer and socioeconomic measures.

Variables that showed statistically significant less delay in care seeking included habit (how one usually acts with a symptom), greater optimism (general beliefs about positive outcomes) and having a friend with breast symptoms. Two combinations of variables explained delay: 1) If a client had anxiety (fear that something was wrong), had a primary care provider, had the habit of not seeking care when she had a symptom and had a barrier (things that precluded her from seeking out care), she would delay seeking health care when she had a symptom; 2) If a client had anxiety, believed that there was little value to care seeking, had a primary care provider, was basically an optimist and had a friend with breast cancer symptom, the woman was likely to delay seeking health care.

#### Summary of Literature

Much of the research available was over representative of White women and women with higher educational levels and household incomes (Vernon et al., 1992). Higher education and income levels were positively associated with the use of screening services irrespective of race (Vernon et al., 1992). Although a number of studies examined the various aspects of screening, there were no studies that looked at specific symptoms or risk factors. Further, there were no studies that looked at CBE results.

Some of the consistencies found in the literature were that economics and education were associated with health screening behavior. Also it was found that lower incomes and education were associated with delayed screening activities, as well as more advanced stages of breast cancer at diagnosis. Although race was implicated in delayed health care-seeking behavior, there were inconsistencies between the studies. The most consistent differences found were those associated with income rather than with race, when considering screening and health care-seeking behaviors.

No literature was found that looked at whether Blacks and Whites reported different or more symptoms and/or risk factors. In addition no literature was found that addressed a relationship between risk and/or symptoms and CBE findings.

This research study looked at race as it related to susceptibility factors, such as risks and symptoms and whether these factors were associated with perceived severity, i.e., positive CBE findings, in a sample where income was controlled. This will add some insights into how race relates to risks, symptoms and CBE findings.

#### METHODS

This investigation was a descriptive study of participants in a Michigan Breast and Cervical Cancer Control Program (BCCCP) between October 1, 1993 and April 5, 1996. This study used data collected through the district health departments and reported to the Michigan Department of Community Health (MDCH). A secondary analysis of the statistical information was performed. In order to answer the research questions, a retrospective secondary analysis utilizing first-time visits to the BCCCP by clients from October 1993 to April 1996 was obtained from the MDCH.

The BCCCP was commissioned by the MDCH in 1990 and began during the winter/spring of 1990/1991. The primary goal of this program was propelled by the idea that if barriers to breast and cervical cancer screening were outweighed by the benefits, there would be an increase in the likelihood of screening actions. It was the aim of the program to provide screening and follow-up services for breast cancer control to female Michigan residents age 40 and over with low or fixed incomes at no cost to the patient. The endeavor was to provide services by using a model of holistic care. The aim of the program was to serve as the primary contact system for women and to follow them through their entire cycle of care (from breast cancer screening through treatment).

To participate in the BCCCP, the following eligibility criteria were required: one needed to be a female Michigan resident, age 40 or older with proof of income at or below 250% of poverty. Once an individual was found to be eligible to participate, four required forms were completed prior to screening: 1) the Health History Form: 2) the Client Enrollment Form (including client information, demographic information and medical history information) (appendix A); 3) the Record of Informed Consent/Release of Information Form (signed in the presence of staff and staff to sign as witness) (appendix C); and 4) Mammogram Availability Form (to help when scheduling mammograms). <u>Sample</u>

The population, from which the research sample was extracted, was the total Michigan case load of first-time, Black and White participants of the BCCCP between October 1, 1993 and April 5, 1996. The total population was 67,667 participants who had been screened at least once in this program between 1990 and March 1997. The sample population size was 33,873 individuals. Though women of any race may participate in the BCCCP, the sample population included only self-reported Black and White women, 40 years or older and whose income fell at or below 250% of the poverty level.

A criteria that limited the sample to include only certain individuals in this program, was that only first-time participants in the program were included. This was due to the fact that not all the participating health departments updated their Client Enrollment form information and forwarded them to the MDCH each year. To decrease the inaccuracies that may arise if, for example, one year the client may have a symptom or risk factor that they did not have or were not aware of the previous year, the Screening Form data and the Client Enrollment form data were not from the same year. To eliminate this type of discrepancy, only first-time attendees to the program were used, thereby better assuring that Client Enrollment forms and Screening Forms were current.

The current Client Enrollment Form and Screening Form were fully operational by October 1, 1993. The beginning date was chosen in October 1993 for this reason. The ending date was the date this researcher began this research project.

#### Instruments

The data utilized in this study were already collected and were found on two forms; the Client Enrollment Form (appendix A) and the Screening Form (Clinical Breast Exam) (appendix B). Both of these forms were developed by nurses and statisticians at the MDCH using Centers for Disease Control (CDC) guidelines. These data collection forms were taken to a committee composed of an epidemiologist, medical doctors and researchers with an expertise in breast cancer to assure that they contained at least the minimal elements needed to assess, screen and follow each case.

The Client Enrollment form was mailed to the client and completed prior to her scheduled screening appointment. At the time of the screening, this form was reviewed and clarified with the client by a screening staff member prior to the physical examination. If the client had not completed the forms, the staff member assisted the client in completing the form prior to the examination. The Screening Form (Clinical Breast Exam) was completed by the Advanced Practice Nurse (APN) during the physical examination.

The current data collection forms were operationally tested but not validated. In 1993 the data collection forms were updated for simplicity and designed so that the data collected could be computer analyzed by both the MDCH and CDC. The current Client Enrollment Form and Screening Form were fully operational by October 1, 1993. Only

certain items were analyzed from the Client Enrollment Form and Screening form. These items were extracted and are displayed in Appendix (A).

Consistency was maintained through quality assurance audits for analysis and tracking. This information was transmitted on the 15th of every month and a data error report generated for each health department in Michigan that participated in this program. Confidentiality was maintained at the MDCH by making the data accessable to only two persons; the data manager and the statistician. All information gleaned from this data was identified by case number exclusively. This data was also available to the CDC cancer registry, but only by case number.

# **Operational Definitions**

The following definitions were specific to the research variables.

<u>Race</u>--is defined as the self-report of any individual reporting that they are of a particular ancestry. In this study only two races were included--African American or Black and Caucasian or White. On the Client Enrollment Form each individual identified herself by checking her race as either Black or White. White was coded as 1 and Black was coded as 2.

<u>Risk Factors</u>--There are five risk factors identified in this study. Each risk factor was identified by the woman being screened who placed a check mark by the risk that was applicable to her as found on the Client Enrollment Form - Medical History. For the purposes of this study a risk factor was a self-report that included any one or more of the following: personal cancer history; family history of first-degree relative with breast cancer (could be mother and/or sister); personal history of breast surgery (could be
biopsy, cancer surgery, breast reduction, breast implants and/or any other breast surgery); personal history of benign breast disease (diagnosed by a primary care provider) and/or hormone replace therapy. Each risk factor was coded as 1 for (yes), meaning that the client identified at least one of the risk factors as applicable to her, or 2 (no), meaning no risk factors were identified as applicable to her.

<u>Symptom</u>--In this study four symptoms were identified. For the purposes of this study a symptom was one or more self-reported change in the breast that could be perceived as possible cancer as found by the client upon BSE. Symptoms were identified by self-report on the Client Enrollment Form - Medical History by placing a check mark by any symptom applicable to the individual. The four symptoms under study included a lump (a solid mass in the breast tissue, axilla or chest wall identified and located by touch); nipple discharge (liquid expressed from or discharging spontaneously from the nipple); skin changes (dimpling in the skin of the breast, chest wall and/or nipple retraction) and/or pain. Each symptom was coded as 1 (yes), meaning that the client identified at least one of the symptoms as applicable to her, or 2 (no), meaning no symptoms were identified as applicable to her.

Positive CBE Findings--These findings were defined as a sign found on CBE by the APN that was suspicious for breast cancer. Any one or more of the following abnormal breast findings in either breast were sufficient to represent a positive versus a negative finding. There were four positive CBE findings identified for the purposes of this study. A positive CBE finding was at least one of the following: 1) an asymmetrical thickening of the breast tissue; 2) smooth, mobile round or oval mass; 3) an irregular,

firm, mobile mass--indeterminate (meaning that the significance of the mass is unknown, thereby requiring further evaluation); and/or 4) an irregular, hard, fixed mass. Each abnormal finding was identified by the APN during the exam by placing a check mark by any abnormal finding that applied to the individual being screened as found on the Screening Form. An abnormal finding or a positive CBE was coded as 1 (yes), meaning that at least one abnormality was found, or 2 (no), meaning no abnormality was identified and that this was a negative CBE.

#### Data Collection and Analysis

The preliminary data were collected by the BCCCP and compiled and analyzed by the MDCH and CDC. A letter was sent to the MDCH requesting the use of the BCCCP data. Specific data requested included risk factors, symptoms and CBE findings. Specific population parameters included women who self-reported being either Black or White. Certain additional demographic data about the sample population requested included age, education and employment.

Each of the research questions was analyzed as follows:

Question 1: What percentage of White and Black women report each risk factor for breast cancer? Frequency and percentages were calculated for each risk factor by race with chi-square analysis.

Question 2: Is there a statistically significant difference in the number of risk factors for breast cancer reported by White and Black women? A t-test was performed to determine if there was a statistically significant difference in the number of risk factors between the two races.

Question 3: What percentage of White and Black women report each symptom related to breast cancer? Frequency and percent was calculated for each symptom and by race with chi-square analysis.

Question 4: Is there a statistically significant difference in the number of symptoms reported by White and Black women? A t-test was performed to determine if there was a statistically significant difference in the number of symptoms between the two races.

Question 5: Is there a proportional association between positive and negative CBE findings in White and Black women? A 2x2 cross tabulation with chi-square analysis was performed between CBE findings (positive or negative) and race (White or Black) to determine if statistically significant proportional differences exist.

Question 6: Is there a proportional association between reported risk factors and/or symptoms and CBE findings in Black and White women? A 4x4 cross tabulation with chi-square analysis was done by creating two categories: A) a "susceptibility category" consisting of four susceptibility groups: 1) neither symptoms nor risk factors, 2) only symptoms, 3) only risk factors and 4) both symptoms and risk factors. B) a "Race by positive CBE category" consisting of four race by positive CBE groups as follows: 1) Black women with positive CBE findings, 2) Black women with negative CBE findings, 3) White women with positive CBE findings and 4) White women with negative CBE findings. The cross tabulation looked at the susceptibility groups by race, by CBE findings groups and (4 X 4 table) with chi-square analysis was performed to determine if there is a statistically significant proportional differences found between each race.

#### Confidentiality of Human Subjects

Because these data were collected and analyzed by the MDCH, the researcher had no direct contact with the subjects or the raw data. This study did not request identifying information, therefore, there was no breach in confidentiality. In accordance with thesis protocol an Application for Approval of a Project Involving Human Subjects was submitted for review and approval to the University Committee on Research Involving Human Subjects (UCRIHS)(appendix C).

Due to the fact these data are confidential, direct access to these data was not possible; however, specifically requested analysis of the data was acquired through the demographics and statistical liaison for the BCCCP at the MDCH.

#### Assumptions and Limitations

There are a number of assumptions and limitations in this study. It was assumed that the women understood the questions on the Client Enrollment form and answered them truthfully to the best of their knowledge. It was assumed that data were collected and entered into the data base accurately both at the local and state levels. It was also assumed that the requested information and analysis of the MDCH statistician was done accurately and as requested. It was assumed that the CBE was performed following the CDC and National Cancer Society guidelines by all the participating APNs and that documentation was accurate. This researcher assumed that the women who answered that they had symptoms and/or risks were aware that a symptom or risk could indicate that something could be potentially wrong with them or placed them at increased potential for breast cancer. It was also assumed that either of these two variables (symptoms or risks) could increase the participants perceived cancer susceptibility. It was assumed that when clients were made aware of positive CBE findings, they perceived that the findings implied severity. Limitations

The assumptions regarding perceived susceptibility and severity were also limitations to this study. Symptoms, risks and CBE findings were inquired about on the questionnaires; however, they were neither explicitly nor implicitly identified as perceived susceptibility or severity factors. However, for the purposes of this study the researcher assumed that these women knew or perceived that the items identified as affirmative on the Client Enrollment form and/or Screening form were or could have been perceived as susceptibility or severity factors. This, however, limited the accuracy of the perception factors in this study.

#### RESULTS

The case load data were obtained from the BCCCP of first-time users between October 1993 and April 1996 and the statistical analysis was executed by the statistician from the MDCH. The ages of the participants in this sample ranged from 40 to 95 years old. White women in the sample had a mean age of 55.6 and Black women had a mean age of 53.8 years. The characteristics of the sample are displayed in Table 1. In looking at

the overall sample, the majority of the participants were approximately 55 years old, unemployed White women with some high school education.

Research questions

(1) What percentage of White and Black women reported the presence of each risk factor for breast cancer?

The percentage of White women with a particular breast cancer risk factor ranged from 1.8% (personal history of breast cancer) to 18.7% (use of hormone treatment). The percentage for Black women with breast cancer risk factors ranged from 2.2% (personal history of breast cancer) to 17.5% (personal history of breast surgery). Table 2 displays each risk factor and reveals the number and percentage of women who reported each risk factor.

The two most frequently reported risk factors by White women were use of hormone treatment and personal history of breast surgery (18.7% and 18.6% respectively). The difference between these two risks were negligible, however, the next most frequently reported risk for White women was family history of breast cancer (13.4%). For Black women, the two most frequently reported risks were personal history of breast surgery and hormone treatment (17.5% and 11.3% respectively).

There was a significantly higher proportion of White women who reported four of the five risk factors. Personal history of breast cancer had a low and non-significant percent in both racial groups.

(2) Is there a statistically significant difference in the number of risk factors for breast cancer reported by White and Black women?

Table 1

<u>Demo</u>	grap	<u>hics</u>	<u>of</u>	Sample	
				-	

Group	%		<u>n</u>
Race ( $N = 33,873$ )			
White	82.0		27,881
Black	18.0		5,992
Education ( $n = 31,878$ )			
Grade School	1.2		399
Some High School	71.2		24,101
Some College	22.7		7,378
Employment ( $\underline{n} = 29,953$	5)		
Part Time	23.0		7,786
Full Time	17.3		5,860
Not Employed	58.3		16,307
Age in Years	M	SD	Range
White	55.6	11 37	40 - 95
Black	53.0	0.04	40 - 93
DIACK	22.0	7.74	40 - 92
Total	55.2	11.15	40 - 95

Table 2

	White Wo	omen	Black Wo	Black Women				
Risk Factors	%	<u>n</u>	%	<u>n</u>	X²	Þ		
Personal history	,					<u></u>		
of breast cancer	1.8	513	2.2	129	2.60	.11		
Family history								
of breast cancer	13.4	3,745	10.9	655	27.29	.00*		
Personal history	,							
breast surgery	18.6	5,186	17.5	1,048	4.05	.04*		
Personal history	,							
breast disease	10.5	2,925	5.2	310	161.44	.00*		
Use of hormone	•							
treatment	18.7	5,221	11.3	676	190.09	.00*		

## Percent and Frequency of Reported Risk Factors by Race (N = 20,408).

\*<u>p</u> ≤ .04

In this sample there was a potential that anywhere from zero to five risks could have been reported by any individual in this study; however, no more than three risk factors were reported by any one individual irrespective of race (table 3).

The highest percent for both racial groups was the category of "no risks." The difference in the number of risk factors for breast cancer reported by White and Black women was statistically significant using the unequal variance formula t-test summarized in Table 4. White women had an average of .31 risk factors, while Black women reported .19 risk factors.

(3) What percentage of White and Black women report each symptom related to breast cancer?

Table 5 shows the frequency and percents calculated for each symptom and their rank order by race from the least frequently reported to the most frequently reported. The ranking from least to most frequently reported symptom were the same for both White and Black women. The percentages differed between the two groups: White women ranged from 2.7% (skin changes) to 17.3% (pain); while Black women ranged from 3.1% (skin changes) to 22.4% (pain). Black women had higher percents in each symptom category.

#### Table 3

## <u>Percent and Frequency of Total Number of Reported Breast Cancer Risk Factors</u> (N = 33,873).

Number of Risks	v	Vhite	Black		
	%	<u>n</u>	%	<u>n</u>	
No Risks	72.3	20,150	83.1	4,978	
One Risk	24.5	6,821	15.3	918	
Two Risks	3.2	892	1.5	91	
Three Risks	.3	18	.1	5	

## Table 4

## <u>T-test for Independent Samples of Risks (N = 33,873)</u>.

		<u>50</u>	Kange
Thite 27,	381 .31	* .53	0 - 3
lack 5,	992 .19	• .43	0 - 3
lack 5,	992 .19	• .4	13

\* <u>t</u> (10274.76) = 19.37, <u>p</u> < .00.

## Table 5

## Percentage and Number of Reported Symptoms by Race (N = 11,569).

	Whi	te	Blac			
Symptoms	%	<u>n</u>	%	<u>n</u>	X²	₽
Skin Changes	2.7	749	3.1	184	2.72	.09
Nipple Discharge	3.1	<b>87</b> 1	4.0	240	12.08	.00*
Lump	9.6	2,688	11.2	669	12.83	.00*
Pain	17.3	4,824	22.4	1,344	87.07	.00*

\* p < .00

(4) Is there a statistically significant difference in the number of symptoms reported by White and Black women? In this sample a potential existed that anywhere from zero to four symptoms could have been reported by any individual in this study. The vast majority of the individuals in this study reported no symptoms. A small percent in each group reported all symptoms. The distribution of White and Black women by the total number of symptoms reported is reported in Table 6. The difference in the number of symptoms for breast cancer reported by White and Black women was statistically significant using the unequal variance t-test summarized in Table 7. White women averaged .33 symptoms, while Black women reported .41 symptoms.

(5) Is there a proportional association between positive and negative CBE findings in White and Black women?

Table 8 shows a cross tabulation that was performed between CBE findings and race to determine if statistically significant proportional differences existed.

Only about 13% of the White women and about 20% of Black women were found to have positive CBE findings. There was a statistically significant difference between race and CBE findings. The Black women in this study exhibited a statistically significant greater percentage of abnormal or positive CBE finding than did their White counterparts.

Though not explicitly shown in the table, of the total number of women who attended the BCCCP, 1.7% ( $\underline{n}$ =555) did not receive a CBE. Of those who did receive a CBE, 82.2% ( $\underline{n}$ =27,189) were White and 17.8% ( $\underline{n}$ =5,875) were Black. Together the two groups made up 98.3% of the total case load.

## Table 6

## Percent and Frequency Table of Total Number of Reported Breast Symptoms

## <u>(N=33,873)</u>.

Symptom Reported	W	hite	В	lack	
	%	<u>n</u>	%	<u>n</u>	-
No Symptoms	75.8	21,120	70.3	4,210	
One Symptom	17.2	4,785	20.7	1,238	
Two Symptoms	5.8	1,620	7.5	451	
Three Symptoms	1.1	317	1.3	75	
Four Symptoms	.1	39	.3	18	

## Table 7

## <u>T-test for Independent Samples of Symptoms (N = 33,873)</u>.

Race	<u>n</u>	M	<u>SD</u>	Range
White	27,881	.33*	.65	0 - 4
Black	5,992	.41*	.71	0 - 4

 $\overline{t (8285.02) = -7.95, p < .00.}$ 

CBE Results	W	hite	Black		
	%	<u>n</u>	%	<u>n</u>	
Normal	85.6	23,704	78.9	4,684	
Abnormal	12.6*	3,485	20.1*	1,191	
Not performed	1.8	492	1.1	63	

Cross Tabulation of Clinical Breast Exam (CBE) Findings by Race (N=33,619).

\*  $X^{2}(2, \underline{N} = 33,619) = 237.60, \underline{p} < .00$ 

(6) Is there a proportional association between reported risk factors and/or symptoms and CBE findings in the White and Black women?

A cross tabulation was done by creating two categories: A) the "susceptibility category" consisted of four susceptibility groups on the horizontal axis: 1) neither symptoms nor risk factors, 2) only symptoms, 3) only risk factors and 4) both symptoms and risk factors; B) the "severity category" consisting of four race by CBE groups on the vertical axis: 1) White women with positive CBE findings, 2) White women with negative CBE findings, 3) Black women with positive CBE findings and 4) Black women with negative CBE findings.

Table 9 presents the cross tabulation of susceptibility groups, with CBE findings by race. The vast majority of both White and Black women had normal CBEs (23,212 and 4,621 respectively). There was an overall statistically significant difference (p<.00) between severity by susceptibility. Due to the large number of cells in the cross tabulation, it was not possible to determine exactly where the significance occurred. However, certain patterns were observed in this sample which may explain the statistical significance.

Table 9

<u>Cross Tabulation of Severity Categories (Race and Clinical Breast Exam findings (CBE)) by</u> <u>Susceptibility Category (Symptom and/or/nor Risk Factors) (N = 33,064)</u>.

			· · · ·	Susc	eptibility	Catego	ries		
Severity Categories	Neith	ner	Symp only	otoms	Risl only	ks V	Bo	oth	Total
	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	<u>n</u>
White/normal CBE	72.6	10,048	59.3	2,664	75.5	7,459	62.5	3,041	23,212
White/abnormal CBE	8.2	1,139	16.8	756	10.9	1,07 <b>8</b>	20.6	1,004	3,977
Black/normal CBE	16.4	2,265	15.9	713	11.2	1,108	11.0	535	4,621
Black/abnormal CBE	2.8	383	7.9	356	2.3	228	5.9	287	1,254
Total	100.0	13 <b>,8</b> 35	100.0	4,489	100.0	9,873	100.0	4,867	33,064
	000 10								

 $X^{2}(9, \underline{N} = 33,064) = 1299.49, \underline{p} < .00$ 

First, when looking vertically, down the rows, it was observed that the majority of both White and Black women were found to have neither symptoms nor risks. The second most often reported susceptibility category, by both White and Black women was risks only. Two of the susceptibility categories (neither risks nor symptoms, and risks only) accounted for the vast majority of the women in the sample, with both normal and abnormal CBEs. The third most commonly reported susceptibility category for both White and Black women was the category of both risk, and symptoms (n=4,867). Finally, the least often reported category was symptoms only, in which there was a total of 4,489.

Once the neither risks nor symptoms category were accounted for, White women who had abnormal CBE findings most frequently reported risks only, followed by both symptoms and risks (1,078 and 1,004 respectively). Conversely, when Black women had abnormal CBE findings they most often reported symptoms followed by both risks and symptoms (356 and 287 respectively).

#### Additional Findings

Four of the five risk factors reported showed significant differences between the two racial groups (see Table 2). The statistically significant risks in this study included family history of breast cancer, personal history of breast surgery, personal history of breast disease and use of hormone treatment. The only risk factor that showed no statistical significance was the risk of personal history of breast cancer.

Significant differences between groups were found for the following symptoms: 1) nipple discharge, 2) breast lump, and 3) pain (see Table 4). All differences were at the p < .00 level. The symptom skin change was not found to be statistically significant.

#### DISCUSSION

#### Demographics

Certain of the demographic characteristics of this sample were consistent with those reported in the literature (Vernon et al., 1992, American Cancer Society, 1996b; American Cancer Society, 1995; Swanson et al., 1993) in that it is often the case that a disproportionate number of white participants attend screening programs. The BCCCP is no exception to this. Of the total sample, White women made up 82%. Since this sample was large, the findings are more generalizable. The sample was also unique in that it consisted of women of both races who were financially disadvantaged (based on the eligibility criteria).

An interesting result for the overall sample was that the mean age of the women was 55.2 years old, which is relatively young. Generally, breast screening targets women in midlife and older, since cancer diagnosis increases with age (American Cancer Society, 1997; Shapiro & Clark, 1995). This sample was younger than expected, based on national incidence rates. National incidence rates indicate that the largest number of new cases of breast cancer are found in women between 70-79 years old (American Cancer Society, 1997).

#### Susceptibility Categories

<u>Risk Factors.</u> When looking at risk factors a number of interesting findings emerged within this study. There was a lack of literature that examined risk factors; therefore, in some cases, one could only surmise why the results were as they were. The primary risk factors reported by White women were the use of hormone treatment, followed closely by personal history of breast surgery. For Black women, breast surgery was the most commonly reported risk, while use of hormones followed at a comparatively distant second.

There may be a number of reasons for the differences in the reported risk factors between the two races. One reason may be that a disproportionate number of White women in this sample used hormone treatment (18.7%) as compared to Black women (11.3%). This could be due to the fact that White women have greater access to care and perhaps seek out health maintenance more readily than Black women. Other factors that may have contributed to this disparity between the races could be that hormone replacement therapy (HRT) was financially prohibitive, was not offered by primary care providers, may not be valued culturally and may be considered untrustworthy by Black women.

The primary risk factor reported by Black women was a history of breast surgery. The significance of these risk factors may be a reflection of the fact that Black women of low socioeconomic status are sometimes driven to seek out health care after there has been a perceived problem rather than for screening exclusively (Dayal, Power & Chiu, 1982; Vernon et al., 1992; Mettlin, 1992; Ansell, Whitman, Lipton & Cooper, 1994).

The one reported risk factor with similar percentages between the White and black women was the risk factor of personal history of breast surgery (18.6% and 17.5% respectively). The overall samples were relatively young (55 years). The literature consistently indicated that as age increases so does the risk for breast cancer (Mettlin, 1992; American Cancer Society, 1997). This sample's relative lack of risks might be a reflection of its youth. The three least frequently reported risk factors for both racial groups were the same (personal history of breast cancer, personal history of breast disease and family history of breast cancer).

When looking at the number of risk factors reported by each racial group the large majority of women reported no risks (Table 3). The average White woman reported less

than one risk (.31), while the average Black woman reported even less (.19) than did White women. More Black women reported no risks (83.1%) than White women (72.3%) (Table 3). A number of factors may contribute to this finding. One reason could be that a number of women may not be aware of what constitutes a risk factor. Black women may not be aware of their family history of breast cancer because culturally, cancer is often not discussed openly even in families. As a result, consistent with the literature, Black women have historically, underestimated the prevalence of cancer, survival rates and effectiveness of treatment and preferred not to know that they had cancer (Lauver, 1992). This may have placed these minority women at a disadvantage because their family and personal histories may be sketchy, due to the fact that they have avoided screenings, have limited reportable history, and limited knowledge of susceptibility factors.

Screening is designed to target the asymptomatic individual; however, Black women with risks in this sample most likely had symptoms that resulted in surgery. This indicates that they were already in the health care system at some point. This could mean that they had a sign or symptom at an earlier date or a perceived susceptibility that was confirmed and progressed to a perceived severity factor, thereby increasing their overall individual perceptions of a breast cancer threat. No distinction was made as to what type of surgical intervention was performed on the breast. It is probable, based on the fact that the women screened were low-income, that most of these surgeries were not cosmetic, but rather for treatment of disease.

<u>Symptoms.</u> The four symptoms under study (skin change, lump, nipple discharge, and pain) were found to be identically rank ordered by both races. Although all the

symptoms except skin change, were found to be significantly different between the races, the percentages of each symptom were relatively close (Table 5). The greatest percentage disparity was for the symptom of pain. Pain was reported by 5% more Black women than White women. This is consistent with the literature, which reveals that the most common and often most nonspecific symptom reported by women is pain (Cady et a1., 1994). Although pain may be a symptom of breast cancer, the APN in clinical practice should make her clientele aware, through education, of the reality that the most frequent etiologies for breast pain are hormonal changes during the menstrual cycle and "fibrocystic" changes (Cady et al., 1994). Encounters also afford the APN an opportunity to educate on ways to decrease or even eliminate this symptom.

The breast lump was the second most common reported symptom, followed by nipple discharge and skin changes. All four symptoms were reported by a higher percentage of Black women than White women. The literature revealed that minority women tended to seek out care later than White women when they discovered a symptom (Lauver, 1994; Lauver & Ho, 1993; Richardson et al., 1992).

When looking at the number of symptoms reported by each race overall, Blacks reported more symptoms. This is consistent with the literature in that one could extrapolate from these results that perhaps minority women who presented for screenings were more likely to perceive that they had a problem. In light of this, the APN needs to be concerned with recruitment in the Black community. The APN with Black clientele may need to use a different approach in recruiting within this population. When the client presents with any of these symptoms, the APN has an optimal opportunity to educate and

facilitate follow up while positively reinforcing the importance and benefits of annual breast screening.

#### Severity Category

<u>CBE.</u> A majority of both White and Black women had normal CBEs; however, when looking at positive CBEs a significantly higher percent of Black women had abnormal findings than White women (Table 8). Much of the literature agreed that minority women are consistently found to have more advanced stages of breast cancer when first diagnosed (American Cancer Society, 1996b; American Cancer Society, 1995; Farley & Flannery, 1989; National Cancer Institute (NCI), 1989; Swanson et al., 1993; Vernon et al., 1992; Wells & Horm, 1992). This study did not investigate at what stage or even if a cancer may have been found; however, it would be consistent with the trend of later stage diagnosis that a positive CBE was found more often in Black women.

#### Interrelationship of Concepts

Susceptibility by race and severity. Looking at the interrelationship between susceptibility with race and CBE, a number of interesting differences were found between the races. Most of the women screened had neither risks nor symptoms. This was encouraging in that this was the target population for screening. The literature clearly indicated that 70-75% of women diagnosed with breast cancer had no identifiable risk (American Cancer Society 1997).

Even though the majority of women who had the primary susceptibility category (neither risks nor symptoms) had normal CBEs, the greatest number of women who had abnormal CBEs also fell in the same susceptibility category of neither risks nor

symptoms. This would indicate that with or without a severity factor women in this sample most likely had neither risks nor symptoms.

The second largest group who were screened were those with normal CBEs and risks only. This group was quite a bit smaller than the majority group. This finding was due probably, in part, to the large number of White women in the sample.

When looking at the data once the neither risks nor symptoms category was removed, White women were most likely to report risk if they had an abnormal CBE. The two smaller groupings included those with both risks and symptoms and lastly symptoms. This finding was probably also due to the large number of White women in this sample. As severity is a reflection of abnormal CBE findings in this study, the differences found between the races and the susceptibility categories were of particular interest. White women with the susceptibility category of risks had the highest number of abnormal CBE findings (1,078), followed by those with both risks and symptoms (1,004).

Among White women, the individual perception of risk may, in itself, have been a sufficient threat of disease (breast cancer) to cue attendance for breast cancer screening. The fact that over a quarter of the White women screened, reported risk could be indicative of the fact that White women are more aware of their risks or deem risks an important enough threat of potential breast cancer to warrant screening. The fact that both risk and symptoms are the next susceptibility category for White women, is largely due to the high number of risks reported, rather than symptoms.

When the category of neither risks nor symptoms was removed, it was found that among the Black women, the susceptibility category of symptoms, had the highest

number of abnormal CBEs (356), followed by those with both risks and symptoms (287). As mentioned earlier, Black women tend to underestimate prevalence, survival and effectiveness of treatment (Lauver, 1992) therefore, they may be less likely to discuss breast cancer with family members, resulting in a lack of knowledge about risks. Once a woman had a symptom, this was perceived as a threat and screening was sought. Another factor which might contribute to the fact that Black women are more likely to have a symptom before seeking screening may be the way in which screenings are presented by the media. It could be that advertisement for screenings based on neither risk nor symptom, or risks alone are either not reaching the Black community or are not presented in a way that is meaningful, valuable or relevant to this segment of the population. It is therefore, important that the APN approach this population in a culturally appropriate, relevant and sensitive manner, e.g., utilizing community leaders to present the importance of breast cancer screening. The category of both risks and symptoms was reported next and was due to the large number of individuals with symptoms rather than risks.

#### Implications for APNs

This study has a number of implications for the advanced practice nurse (APN) caring for not only White and Black women, but all women and particularly those who are underserved. This study looked at the HBM concepts of susceptibility and severity as a framework to guide this study. However, the result of looking at these areas revealed that the APN may need to take a different strategy for recruiting and educating his/her clientele.

Risks and symptoms may bring certain women for screening; however, the women in this research to a great extent presented with neither. It is therefore, important that the APN be more aggressive in targeting both women with and without susceptibility factors for screening. The concept of susceptibility found in the HBM may be utilized as a guide to assist the APN in his/her role of educating women and increasing their individual perceptions of susceptibility. Other concepts of the HBM may be even more appropriate areas to target for more effective screening recruitment. A more applicable concept found within the HBM for community awareness and recruitment most likely falls under the category of cues to action. The APN may contribute to community awareness and public education by becoming involved in offering public service talks regarding breast cancer screenings at community churches, senior citizen communities, women's clubs, business gatherings that target women (women fashion, cosmetologists and health club owners, etc.). In these venues women who may not be reached can be reached and educated by word of mouth from their peers at locations and under circumstances where they feel comfortable and from people they trust and value.

<u>Practice.</u> The APN in clinical practice can influence the individual client's perceptions of what constitutes standard quality care. This can be achieved in a number of ways. First, the APNs can accomplish this by implementing through annual histories and/or history updates, performing CBEs, instruction in BSE (breast self exam) and referring women 40 year and older for annual mammographies as a routine portion of their health maintenance regiment. In so doing the APN normalizes these screening practices and assists the client in expecting and seeking out this care as standard.

The APN as a coordinator of care and advocacy can facilitate his/her clients in accessing cost effective screening. This data shows that the report of a symptom could be of vital importance with regards to its association to the increased likelihood of an abnormal CBE. When a client contacts the health care system via telephone to voice a concern or breast cancer symptom, the APN should immediately obtain a risk profile and arrange an appointment for evaluation of the symptoms as expeditiously as possible. Once they come in for evaluation is also important that the APN spend sufficient time with the clients in order to assess whether or not they can afford what he/she is recommending and refer them to subsidized programs (such as the BCCCP) when appropriate.

In the area of recruitment the APN should encourage her clientele to influence their friends and relatives, based on awareness of susceptibility factors, to seek out screening appropriately. It is important that the APN's clientele be aware of the fact that 70-75% of women diagnosed with breast cancer had no risk factors. Also the clientele should be encouraged to seek early diagnosis for the best prognosis.

In this research sample in the area of risk, it was found that White women who reported risks most often reported hormone use, followed closely by breast surgery. With this information the APN can find areas for intervention. Based on this risk data, an area that has clinical importance among White women, with regard to recruitment for breast cancer screening (CBE and mammography), includes education about susceptibility associated with the value versus the risk of hormone replacement therapy. Another area that should be stressed, based on the data, is the need for annual CBEs especially when

there appears to be no risks or symptoms. Generally, one could surmise that women with risks or symptoms would be more likely to seek screening. However, this research data did not bear this out. Most of the women in this study had less than one risk. As an APN there is a need to especially target those without any risks. However, this data leaves one to wonder whether there is a whole segment of the population with risks and symptoms who are not attending screening. The APN must also target this non-attending population of women who may be at risk.

Black women in this sample most frequently reported personal history of breast surgery, followed by use of hormones. This is of particular relevance to the APN in clinical practice because the Black women being screened who have risks have at times already had some breast surgery. In clinical application this is key. Black women with risks who present for screening often already have experienced some breast disorder that required surgery. This assumes that they have previously been in the health care system. It is therefore, important that education begin the very first time a Black client enters the health care system.

#### Education

As a change agent and educator, the APN can utilize his/her primary care encounters to educate clients about risk factors and symptoms of breast cancer, thereby giving a realistic concept of susceptibility and severity. These encounters can hopefully change many of the false perceptions that sometimes accompany breast screening. Some of the misconceptions that the APN may be able to change include ideas that a lack of

susceptibility factors means that women are not at risk for breast cancer, that the value of screening is limited, or that CBEs or mammograms are exclusively reliable.

The APN has an excellent opportunity to teach BSE and breast care during the annual exam. The APN in his/her practice and intervention also has an opportunity to give his/her client information about what a risk factor is and what it may or may not mean. The APN should inform the client of what constitutes a symptom, how it should be addressed and how to make a determination as to how to proceed should a symptom occur. The APN can also teach about factors that may reduce the risk of developing cancer in general (low-fat diet, avoiding carcinogens, exercising regularly and eating well-balanced meals) (American Cancer Society, 1997) and early diagnosis for better prognosis (getting annual screenings), while educating the client that there is no proven prevention for breast cancer. The APN can also facilitate the client in being informed about her overall health maintenance.

An area of needed education among health care professionals is in the area of educating providers about the BCCCP and its potential value to their under and uninsured clientele. Health-care providers also need education in the area of sensitivity with regard to dispensing subsidized and free services. Providers need to be sensitive to the fact that the underserved often suspect that they are receiving substandard treatment based on their socioeconomic status. In order to foster confidence in the services being rendered, providers must be sensitive to, and aware of, the stigma and apprehension of minority and underserved individuals who receive state subsidized programs. Providers should reassure

clients that they are receiving good quality care by treating everyone with thoroughness, respect and decency.

It is also imperative that the APN constantly update his/her own knowledge base as new information and recommendations become available. The APN must not only keep him/herself apprised of new innovations and research but should also inform his/her clientele. APNs must become experts in the art and science of CBE. As one of the top cancer killers of women in the United States, it is essential that APNs be involved in continuing community education on the importance of breast cancer screening even when there are no apparent susceptibility factors. The APN may also contribute greatly to the body of screening knowledge and community awareness by being involved in research of screening practice.

#### Research

There is always a need for continuing research in the area of early cancer detection. As the morbidity from breast cancer among minorities (namely Black women) and the underserved (low income and women with limited education) is higher when compared with the majority (namely well educated, middle income or greater, White women). In the vast body of research on breast cancer screening, this author found that in the area of CBE there is little research. One would think that the use, value and/or lack of the use or value of the CBE would be addressed to a greater extent in nursing literature. The value of SBE is documented in the literature, however CBE value seems to be less emphasized.

Breast cancer is a disease which has, as yet, no scientifically identifiable prevention. There are two areas (risk factors and symptoms) that might lead a primary care provider to more aggressively screen and intervene in the health of the client. However, as implied in the findings of this research, the APN must aggressively and innovatively target those women with no susceptibility factors as well. Several questions have arisen out of this study, which may be beneficial to add to the growing body of screening knowledge. One area of interest is target population recruitment. Could the lack of Black participation in screening be the result of a lack of appropriate recruitment tactics and strategies? A look at barriers to participation in screening activities among low income populations may be of value to this growing body of knowledge. Research into what role risk factors might play in whether or not an individual seeks out screening. It might also be interesting to know what clients would identify as risk factors and/or symptoms. Another area that might be interesting to research would be, what symptoms mean to clients and the role they play in whether the client seeks screening.

Although there is a growing body of research among the underserved and minorities, it needs to be strengthened. This research takes a unique look at breast screening, in that it examines relationships between what the client knows and what the clinician assesses. As collaborators in care, the APN can utilize client data and clinician expertise to individualize care while meeting the client's individual needs more comprehensively.

Further research needs to be done in the area of screening the underserved regardless of race (socioeconomically and educationally). More research in the areas of

access to health promotion activities is also crucial. With further study, all women will benefit by research based teaching, healthcare, and healthcare policy formulation for early detection of breast cancer.

#### CONCLUSION

In conclusion this research was consistent with the literature in that, overall, most women who are screened and found to have abnormal breast findings have no apparent risks or symptoms for breast cancer.

This research attempted to determine if there was a relationship between perceived susceptibility (risks and/or symptoms) and perceived severity (abnormal CBE findings) factors for White and Black women. Statistically, there was a relationship between the two factors. However, due to the large sample, it was difficult to tell exactly where this significant relationship occurred.

There are several areas that are clear from this study. First, a large majority of both Black and White women who presented for screening were without either risk or symptom and had normal CBEs. Secondly, if an individual had an abnormal CBE she was also most likely to have neither symptoms nor risks. Third, when the category of neither symptoms nor risks were removed from the equation, if an individual had an abnormal CBE she was most likely to have risks if she was White, or symptoms if she was Black. Fourth, when looking at the number of susceptibility factors reported, though statistically significant, clinically it appeared insignificant with less than one risk or symptom reported by the average screening participant. As an APN, knowing this information is important. Those involved in screening are trained to target asymptomatic individuals. In practice, education and research, the APN should attempt to get this message out, "BEING A WOMAN IS REASON ENOUGH TO BE SCREENED FOR BREAST CANCER."

APPENDIX A

## APPENDIX A

## CLIENT ENROLLMENT FORM

- 1. WHAT IS YOUR RACE? (check one)
  - 1. WHITE
  - 2. BLACK/AFRICAN AMERICAN
- 2. WHAT IS THE HIGHEST GRADE IN SCHOOL YOU

COMPLETED?\_\_\_\_\_

- 3. ARE YOU EMPLOYED? (check one)
  - 1. YES, PART TIME
  - 2. YES, FULL TIME
  - 3. NO NOT EMPLOYED
- 4. HAVE YOU EVER HAD BREAST CANCER? (check one)
  - 1. YES
  - 2. NO

## 5. HAS YOUR MOTHER AND/OR ANY OF YOUR SISTERS EVER HAD BREAST

CANCER?(check one)

- 1. YES
- 2. NO

## 6. HAVE YOU EVER HAD BREAST SURGERY OTHER THAN FOR BREAST

### CANCER?(check one)

- 1. YES
- 2. NO

# 7. HAVE YOU NOTED ANY OF THE FOLLOWING BREAST SYMPTOMS RECENTLY?

A. LUMP (check one)

- 1. YES
- 2. NO

## B. NIPPLE DISCHARGE (check one)

1. YES

2. NO

C. SKIN CHANGES (dimpling, skin and/or nipple retraction, scaling, etc.)

(check one)

- 1. YES
- 2. NO

D. PAIN (check one)

- 1. YES
- 2. NO

## 8. ARE YOU USING HORMONE PILLS, SUCH AS ESTROGEN OR BIRTH

## CONTROL PILLS? (check one)

1. YES

2. NO

## 9. HAVE YOU EVER BEEN TOLD BY A HEALTH CARE PROVIDER THAT YOU

## HAVE BREAST DISEASE? (check one)

1. YES

2. NO

APPENDIX B

## APPENDIX B

## SCREENING FORM

## CLINICAL BREAST EXAM

## RESULTS

## (check where applicable)

RIGHT	NORMAL FINDINGS	LEFT
1	NO MASS PRESENT	1
2	BREAST REMOVED	2
3	SYMMETRICAL THICKENING	3
	ABNORMAL FINDINGS	
4	ASYMMETRICAL THICKENING	4
5	SMOOTH, MOBILE, ROUND/OVAL MASS	5
6	IRREGULAR, FIRM, MOBILE MASS-INDETER.	6
7	IRREGULAR, HARD, FIXED MASS	7
APPENDIX C

٠

## MICHIGAN STATE

UNIVERSITY

May 27, 1997

TO: Gwen Wyatt A230 Life Sciences College Of Nursing

RE: IRB#: 97-337 TITLE: 97-337 THE DIFFERENCES IN REPROTED SYMPTOMS AND/OR RISK FACTORS AND CLINICAL BREAST EXAM FINDINGS IN LOW INCOME BLACK AND WHITE WOMEN REVISION REQUESTED: N/A CATEGORY: 1-E APPROVAL DATE: 05/22/97

The University Committee on Research Involving Human Subjects' (UCRIHS) review of this project is complete. I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and methods to obtain informed consent are appropriate. Therefore, the UCRIHS approved this project and any revisions listed above.

- **RENEWAL:** UCRIHS approval is valid for one calendar year, beginning with the approval date shown above. Investigators planning to continue a project beyond one year must use the green renewal form (enclosed with the original approval letter or when a project is renewed) to seek updated certification. There is a maximum of four such expedited renewals possible. Investigators wishing to continue a project beyond that time need to submit it again for complete review.
- REVISIONS: UCRIHS must review any changes in procedures involving human subjects, prior to initiation of the change. If this is done at the time of renewal, please use the green renewal form. To revise an approved protocol at any other time during the year, send your written request to the UCRIHS Chair, requesting revised approval and referencing the project's IRB # and title. Include in your request a description of the change and any revised instruments, consent forms or advertisements that are applicable.

PROBLEMS/ CHANGES: Should either of the following arise during the course of the work, investigators must notify UCRIHS promptly: (1) problems (unexpected side effects, complaints, etc.) involving human subjects or (2) changes in the research environment or new information indicating greater risk to the human subjects than existed when the protocol was previously reviewed and approved.

If we can be of any future help, please do not hesitate to contact us at (517)355-2180 or FAX (517)432-1171.

ersity Committee on Research Involving Human Subjects<sup>--</sup> (UCRIHS)

Administration Building East Lansing, Michigan 48824-1046

> 517/355-2180 FAX: 517/432-1171

Sincerely, David E. Wri UCRIHS Chair Wright, Ph D DEW: bed

¢c: Afriyie Johnson

59



OFFICE OF RESEARCH AND GRADUATE

**STUDIES** 

LIST OF REFERENCES

## LIST OF REFERENCES

American Cancer Society. (1981). <u>A study of black Americans attitudes toward</u> cancer and cancer tests. New York: Evaxx, Inc.

American Cancer Society. (1996). <u>Breast cancer facts and figures 1996</u>. Atlanta, GA: American Cancer Society, Inc.

American Cancer Society. (1995). <u>Cancer facts and figures 1995</u>. New York, American Cancer Society, Inc.

American Cancer Society. (1997). <u>Cancer facts and figures 1997</u>. New York, American Cancer Society, Inc.

American heritage dictionary of the English language (10th ed.). (1981). Boston, MA: Houghton Mifflin Company.

Ansell, D., Whitman, S., Lipton, R. & Cooper, R. (1994). Race, income, and

survival from breast cancer at two public hospitals. <u>Cancer</u>, <u>72(10)</u>, 2974-2978.

Bassett, M. T. & Krieger, N. (1986). Social class and black: white differences in breast cancer survival. American Journal of Public Health, 76(12), 1400-3.

Becker, M. & Marshall, C. (1974). <u>The health belief model and personal health</u> <u>behavior</u>. Thorofare, NJ: Charles B. Slack, Inc.

Brown, L. & Williams, R. (1994). Culturally sensitive breast cancer screening programs for older black women. <u>Nurse Practitioner</u>, <u>19(3)</u>, 21-35.

Burack, R. C. & Liang, J. (1989). The acceptance and completion of mammography by older black women. <u>American Journal of Public Health</u>, <u>79</u>, 721-726.

Cady, B., Steele, G., Morrow, M., Gardner, B. & Winchester, D. (1994).

Evaluation of common breast problems: A primer for primary care providers. <u>The Society</u> of Surgical Oncology and The Commission on Cancer of The American College of Surgeons for The Centers for Disease Control and Prevention, 1-13.

Crabbe, W. W. (1996). The Tamoxifen controversy. <u>Oncology Nursing Forum</u>, <u>23</u> (5), 761-766.

Champion, V. (1994). Beliefs about breast cancer and mammography by behavioral stage. <u>Oncology Nursing Forum, 21</u> (6), 1009-1914.

Champion, V. (1993). Instrument refinement for breast cancer screening behaviors. <u>Nursing Research</u>, <u>42</u> (3), 139-143.

Champion, V. (1991). The relationship of selected variables to breast cancer detection behaviors in women 35 and older. <u>Oncology Nursing Forum</u>, <u>18(4)</u>, 733-739.

Champion, V. (1988). Attitudinal variables related to intention, frequency and proficiency of breast self-examination in women 35 and over. <u>Research Nursing and</u> <u>Health, 11</u> (5), 283-291.

Champion, V. (1984). Instrument development for health belief model constructs. Advances in Nursing Science, 6, 73-85.

Coates, R., Bransfield, D., Wesley, M., Hankey, B., Eley, J., Greenber, R., Flanders, D., Hunter, C., Edwards, B., Forman, M., Chen, V., Reynolds, P., Boyd, P., Austin, D., Muss, H. & Blacklow, B. (1992). Differences between black and white women with breast cancer in time from symptom recognition to medical consultation. Journal of the National Cancer Institute, 84, 938-950. Dayal, H. H., Power, R. N. & Chiu, C. (1982). Race and socioeconomic status in survival from breast cancer. Journal of Chronic Disease, 35, 675-683.

Douglass, M., Bartolucci, A., Waterbor, J.& Sirles, A. (1995). Breast cancer early detection: Differences between African American and White Women's health beliefs and detection practices. <u>Oncology Nursing Forum, 22</u> (5), 835-837.

Farley, T. & Flannery, J. (1989). Late-stage diagnosis of breast cancer in women of lower socioeconomic status: Public health implications.<u>American Journal of Public</u> <u>Health, 79</u>, 1508-1512.

French, K., Porter, A., Robinson, S., McCallum, F., Howie, J. & Roberts, M.

(1982). Attendance at a breast screening clinic: A problem of administration or attitudes. British Medical Journal, 285, 617-620.

Ingham County Health Department. (1993). <u>Breast and cervical cancer control</u> program: Client registration orientation packet. Lansing, MI: Ingham Co. Health Department.

Johnson, R. A. & Murata, P. J. (1988). Demographic, clinical, and financial factors relating to the completion rate of screening mammography. <u>Cancer Detection and Prevention</u>, <u>11</u>, 259-266.

Jordan, V. C. (1995). Third annual William L. McGuire Memorial Lecture. "Studies on the estrogen receptor in breast cancer"--20 years as a target for treatment and prevention of cancer. <u>Breast Cancer Research and Treatment</u>, <u>36</u> (3), 267-285.

Kelsey, J. & Horn-Ross, P. (1993). Breast cancer: Magnitude of the problem and descriptive epidemiology. <u>Epidemiological Review</u>, <u>15(5)</u>, 7-17.

Lane, D. S. & Fine, H. L. (1983). Compliance with mammography referrals: Implications for breast cancer screening. <u>New York State Journal of Medicine</u>, <u>83</u>, 173-176.

Lauver, D. (1994). Care-seeking behavior with breast cancer symptoms in

Caucasian and African-American women. Research in Nursing and Health, 17, 421-431.

Lauver, D. (1992). Psychosocial variables, race, and intention to seek care for breast cancer symptoms. <u>Nursing Research</u>, <u>41</u>(4), 236-241.

Maclean, U., Sinfield, D., Klein, S. & Harnden, B. (1984). Women who decline breast screening. Journal of Epidemiological Community Health, <u>38</u>, 278-283.

Mettlin, C. (1992). Breast cancer risk factors: Contributions to planning breast cancer control. <u>Cancer (supplement)</u>, <u>69</u>(7), 1904-1909.

National Cancer Institute. (1989). <u>Cancer Statistics Review 1973-1986</u>: Including <u>a report on the status of cancer control</u>. U. S. Department of Health and Human Services, National Cancer Institute, NIH publication no. 89-2789.

National Cancer Institute. (1989). <u>Intervention research in Hispanic populations</u>. RFA no. 89-CA-15, Division of Cancer Prevention and Control, National Cancer Institute.

Noguchi, M., Rose, D. P. & Miyazaki, I. (1996). Breast cancer chemoprevention: Clinical trials and research. <u>Oncology</u>, <u>45</u>(3), 175-181.

Pender, N. (1987). <u>Health promotion in nursing practice (2nd Edition)</u>. East Norwalk, CT: Appleton & Lange. Richardson, J., Marks, G., Solis, J., Collins, L., Birba, L. & Hisserich, J. (1987). Frequency and adequacy of breast cancer screening among elderly Hispanic women. <u>Preventative Medicine 1987, 16</u>, 761-774.

Roberts, M., Alexander, F., Elton, R.& Rodgers, A. (1990). Breast cancer stage, social class and the impact of screening. <u>European Journal of Surgical Oncology</u>, <u>16</u>, 18-21.

Rutledge, D. N., Hartmann, W. H., Kinman, P. O. & Winfield, A. C.(1988). Exploration of factors affecting mammography behavior. <u>Preventative Medicine</u>, <u>17</u>, 412-422.

Rutledge, D.& Davis, G. (1988). Breast self-examination compliance and the health belief model. <u>Oncology Nursing Forum</u>, <u>15(5)</u>, 175-179.

Shapiro, T. & Clark, P. (1995). Breast cancer: What the primary care provider needs to know. <u>Nurse Practitioner</u>, 20(3), 36-53.

Swanson, G., Ragheb, N., Lin, C., Hankey, B., Miller, B., Horn-Ross, P., White, E., Liff, J., Harlan, L., McWhorter, W., Mullan, P. & Keys, C. (1993). Breast cancer among black and white women in the 1980s: Changing patterns in the United States by race, age, and extent of disease. <u>Cancer</u>, <u>72</u>(3), 788-798.

Tabers, C. W. (1985). <u>Taber's Cyclopedic Medical Dictionary (15th Edition)</u>, Philadelphia, PA: F. A. Davis Company.

Vernon, S., Tilley, B., Neal, A. & Steinfeldt, L. (1985). Ethnicity, survival, and delay in seeking treatment for symptoms of breast cancer. <u>Cancer</u>, <u>55</u>, 1563-1571.

Vernon, S. W., Vogel, V.G., Halabi, S., Jackson, G. L., Lundy, R. & Peters, G.N.(1992). Breast Cancer screening behaviors and attitudes in three racial/ethnic groups. <u>Cancer</u>, <u>69</u>(1), 165-174.

Wells, B. & Horm, J. (1992). Stage at diagnosis in breast cancer: race and socioeconomic factors. <u>American Journal of Public Health</u>, <u>82</u>(10), 1383-1385.

