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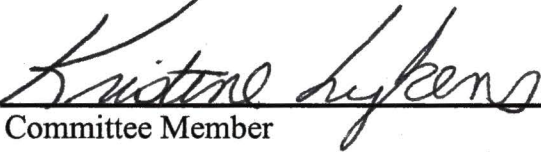
PARTICIPANT QUESTIONNAIRE AND OUTCOME ANALYSIS

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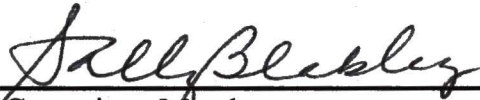
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DO IT FOR ME, MOM.® CERVICAL AND BREAST HEALTH AWARENESS:

PARTICIPANT QUESTIONNAIRE AND OUTCOME ANALYSIS

THESIS

Presented to the School of Public Health

University of North Texas Health Science Center at Fort Worth

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CHAPTER I

INTRODUCTION

Statement of the Problem

Breast and cervical cancers are both major health concerns for women in the

United States (U.S.) and together claim thousands of lives each year. Studies have shown

that death from breast and cervical cancer can be reduced substantially if diagnosis

occurs in an early stage of tumor growth (Kerlikowske, Grady, Rubin, Sandrock, &

Ernster, 1995; Schiffman, Brinton & Devesa, 1996). The two diseases can be addressed

with similar public health responses: community-based programs that involve early

detection of breast cancer and primary prevention of cervical cancer (Lawson, Henson,

Bobo, & Kaeser, 2000).

Health awareness programs provide instruction to women regarding early

detection techniques such as breast self-examination, mammography, clinical breast

examination, and Pap tests. These programs aim to break down the barriers to

performing/obtaining early detection screenings by increasing knowledge of cervical and

breast health and changing attitudes regarding these important screenings (Fernandez,

DeBor, Candreia, Wagner, & Stewart, 1999).

Background and Significance

The National Cancer Institute (NCI) (2000b) and the American Cancer Society (ACS) (2001) both agree that invasive breast cancer is the most common cancer among women in the U.S. New cases of breast cancer for the year 2001 are estimated at 192,200 with 40,200 deaths projected for this year (ACS, 2001). Breast cancer is second in cancer deaths to lung cancer (ACS, 2001). The above figures refer to invasive breast cancer. The term invasive refers to the state of the breast cancer when it has grown into the tissue surrounding the immediate area in which it began (ACS, 2000). In addition to invasive breast cancer, 46,600 new cases of in situ breast cancer are projected (ACS, 2001). In situ cancers have not spread beyond the area where they began. Over the past 25 years, incidence rates of in situ cancers have increased dramatically due to ductal carcinoma in situ (DCIS), which generally accounts for 87% of in situ cancers. DCIS tumors occur in the ducts of the breast. Most cases of DCIS are only detectable by mammography. The large increases in DCIS incidence rates are a direct result of increased mammography screening practices (Ernster, Barclay, Kerlikowske, Grady, & Henderson, 1996).

A woman's overall lifetime risk of getting breast cancer is 1 in 8; 1 in 38 by age 50; and 1 in 25 by age 70 (ACS, 2000). Nearly 97% of women who are diagnosed at an early stage survive for more than 5 years (ACS, 2001). "Early detection of breast cancer greatly improves the treatment options, the chances for successful treatment, and survival" (ACS, 2000, p10). Early detection techniques established by the American Cancer Society include a comprehensive program of annual mammograms starting at age

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40, routine clinical breast examinations (CBE) by a physician starting at age 20, and women 20 and older should perform monthly breast self-examinations (BSE).

The two most common risk factors associated with contracting breast cancer are being a woman and getting older. Other risk factors include personal or family history of breast cancer, early age at menarche, late age of menopause, white race, nulliparity (never having carried a pregnancy), and higher socioeconomic status (Lawson, et al., 2000). Recent studies have shown that only about 5 to 10% of breast cancer cases are directly due to inherited mutations in breast cancer susceptibility genes and that most of these result from mutations of the BRCA1 and BRCA2 genes (Burke, et al., 1997). These mutations occur in less than 1% of the general population (Whittemore, Gong, & Itnyre, 1997).

The 1988-1992 age-adjusted incidence rates from Surveillance, Epidemiology, and End Results data (2001) reveal that white (111.8 per 100,000), Hawaiian (105.6), and black (95.4) women have the highest rates of invasive breast cancer. The incidence for Hispanic women ranks seventh with 69.8 cases per 100,000. The age-adjusted mortality rates for black females are (31.4 per 100,000) and (27.0) for whites. Compared to Anglo females, African American women are less likely to develop breast cancer; however, they are more likely to die from the disease. This is attributable to a high percentage of their breast cancers being detected at a later, less treatable stage. Mortality of Hispanic women ranks fifth with a rate of 15.0 deaths per 100,000 (Surveillance, Epidemiology, and End Results [SEER], 2001).

Cervical cancer is the third most common gynecological cancer (after endometrial and ovarian) among women in the U.S. For the year 2001, the American Cancer Society projects 12,900 new cases of cervical cancer and 4,400 deaths (ACS, 2001). Around the world, cervical cancer is the most common type of cancer among women (SEER, 2001).

The risk factors associated with cervical cancer are certain human papilloma virus infections, having multiple male sex partners, early age of sexual activity, smoking, history of sexually transmitted diseases, low socioeconomic status, and high fat diets (ACS, 2001; Lawson, et al., 2000). According to the National Cancer Institute (2000a), sexually transmitted, human papillomaviruses (HPVs) are now recognized as the major cause of cervical cancer. Currently, researchers are searching for a HPV vaccine, presenting the potential to significantly reduce cervical cancer incidence by developing immunity to HPV (Murakami, 1999). The ACS guidelines for early detection of cervical cancer are an annual Papanicolau (Pap) test starting at the age of 18 or when first sexually active. After three or more consecutive tests with normal findings, the doctor may determine to do the test less often.

The Pap test can detect pre-cancers and HPV infection (ACS, 2001). In the last 50 years since the development of the Pap test in 1943, mortality from cervical cancer has decreased by as much as 70% (Cox, 1999). Compared to breast cancer, women have more control over the risk factors of cervical cancer by making lifestyle changes such as limiting number of sexual partners, abstaining from cigarette smoking, and annual Pap test compliance that detects precancerous changes.

According to 1988-1992 SEER data, Vietnamese women have a higher age-adjusted incidence rate of cervical cancer than that of other groups at (42.3 per 100,000) compared to Hispanic (16.2), blacks (13.2), and whites (8.7). The age-adjusted mortality rates are: black (6.7 per 100,000), Hispanic (3.4), and white (2.5). The mortality rate for Vietnamese is not calculated as SEER studies identified less than 25 cases. As with breast cancer, we find a higher mortality rate among black women than women of other groups even though the incidence rate is lower (SEER, 2001).

Purpose of the Study

The purpose of this study was to identify the characteristics of the participants of a local health promotion program, Do it for me, mom, and determine the increase in cervical and breast knowledge during the program's educational outreach. The participants are Tarrant County women who attended a health education session on cervical and breast cancer in the year 2000. At each educational session, the women completed pretests before the session then participant questionnaires and posttests after the session. The participant questionnaire provides demographic characteristics of these women to determine if they represent women considered underserved by age, ethnicity, or insurance status. The questionnaire also identifies screening compliance rates to reveal how these women compare to national screening compliance behavior. The pretest and posttest data reveals the knowledge level of program participants before and after each education program.

The results of the research will measure whether the program is reaching underserved women and/or women with low screening compliance, while determining if

the education curriculum and abilities of educators improve the cervical and breast health knowledge of its participants.

Hypotheses

In order to determine the effectiveness of a cervical and breast health awareness program in reaching underserved women and to determine its worth as an instructional method for women, three hypotheses were generated:

1. The majority of the women who attended Do it for me, mom programs in the year 2000 in Tarrant County are women nationally determined as underserved.

2. The women served by Do it for me, mom programs in the year 2000 in Tarrant County have lower screening compliance than national averages.

3. Program participants will demonstrate a significant increase of knowledge about cervical and breast cancer early detection techniques and risk factors.

CHAPTER II

REVIEW OF LITERATURE

Compliance and Access to Screenings

The United States Department of Health and Human Services (USDHHS) has set

Healthy People 2010 objectives for breast and cervical health. The breast health

objective is to reduce the breast cancer death rate from 27.9 deaths per 100,00 females in

1998 to 22.3 deaths per 100,000 (a 20 percent target improvement). The cervical health

objective is to reduce the cervical cancer death rate from 3.0 deaths per 100,000 to 2.0

deaths per 100,000 (a better than the best target rate). Healthy People objectives strive to

do this by increasing early detection of tumors through increased mammography use and

Pap testing by identifying precancerous changes and HPV infection (USDHHS, 2001).

American Cancer Society (ACS) (2001) researchers postulate that groups who do

not comply with screening guidelines are more likely to die from the disease than those

who do comply. It is possible to take steps to prevent cervical cancers and to detect them

early when they are most treatable. The mammography and Pap screening rates among

American women reveal their cervical and breast health behaviors. This information

assists in determining which women to target with cervical and breast screening

awareness programs.

Data from the 1999 Behavioral Risk Factor Surveillance System (BRFSS),

reveals that 87.7% of US women aged 40 and over have had a mammogram at least once

in their lifetime. Only 69.5% of US women over 40 have had a mammogram in the last

year. The survey also reveals that as age increases, recent mammography compliance

decreases (Centers for Disease Control and Prevention [CDC], 1999). Data from the

1987-1992 National Health Interview Survey (NHIS) indicates that women with either

low income, less than a high school education or no usual source of medical care were

least likely to have had a recent mammogram (Martin, Wingo, Calle, & Heath, 1996).

The 1999 BRFSS shows that 95.1% of American women surveyed reported having a Pap

smear at least once in their lifetime and 69.2% of women had a Pap smear in the last year

(CDC, 1999). In the 1987-1992 NHIS study, six characteristics were associated with

lower Pap test use, which includes age, ethnicity/race, income, education, marital status,

and source of health care. Those less likely to have had a Pap test were women 45 and

older, non-whites, low-income women, women with a high school education or less,

never married women and widows, and those not having a usual source of medical care.

In addition, the NHIS study found that African American women were more likely to

have had a Pap test than white women and current and former smokers were more likely

than nonsmokers to have had a Pap smear test (Martin, 1996).

The National Cancer Institute (NCI) suggests that cervical and breast screening

awareness programs should target women who have a higher risk, use screening services

less often, and have poorer survival rates. These include women who are older, in rural

areas, Hispanic, African American, American Indian or Alaska Native, Asian American or Pacific Islander, and/or women who are medically underserved (NCI, 1999).

Older women, especially those in low-income areas, have fewer mammograms and Pap tests. More African American women die from breast and cervical cancer than white or Hispanic women. Hispanic women have a decreased knowledge of the importance of breast and cervical cancer screenings. Vietnamese women have a higher incidence of cervical cancer (43 per 100,000); other ethnic groups range from 5.8 to 16.2 per 100,000. Hawaiian and Japanese women ages 30-54 have a higher rate of breast cancer compared to other groups. Native American women have lower breast cancer rates than white women, but their five-year survival rate is lower than that of other ethnic groups (Surveillance, Epidemiology, and End Results [SEER], 2001).

In addition to ethnicity, other characteristics contribute to a woman being underserved. Women with little or no insurance, and those who rarely see doctors (women who are celibate, postmenopausal women, and lesbians of all ages are less likely to use screening services. It is important to look at all barriers, financial and personal, that limits a woman from obtaining cancer-screening services (NCI, 1999).

Breast and Cervical Cancer Programs

Through both public and private public health agencies, health education plays a role in public health by promoting healthful behaviors among the public (Institute of Medicine, 1998). In Turnock's (1997) book, Public Health: What It Is and How It Works, health promotion is defined as:

An intervention strategy that seeks to eliminate or reduce exposures to harmful factors by modifying human behaviors. This process enables individuals and communities to control and improve their own health. Health promotion approaches provide opportunities for people to identify problems, develop solutions, and work in partnerships that build on existing skills and strengths (p. 368).

Breast and cervical health awareness programs can provide health promotion through education to improve and assure the use of early detection screenings. Previous investigative studies have demonstrated how community intervention programs can improve health knowledge through education programs. The following interpretation is a literature review of the importance of cervical and breast health awareness programs.

In 1990, the CDC responded to a need for breast and cervical screenings by establishing the National Breast and Cervical Cancer Early Detection Program (NBCCEDP). The program forms the foundation for a comprehensive, national effort for the control of breast and cervical cancer. The program includes the following components: comprehensive control through screening underserved women, providing referrals for abnormal screening tests, developing and disseminating health education materials, improving professional training, and establishing surveillance systems to evaluate the program. With the above components, NBCCEDP sets a national example for implementation of collaborative programs that aim to improve cervical and breast cancer-screening compliance at the local and state levels (Henson, 1996).

Encore Plus is a health program that provides outreach, education, referral, and other services that facilitate breast and cervical cancer screening for medically underserved women. The evaluation of the Encore Plus program revealed that the program was successful in reaching low-income, minority, and medically underserved women; was successful in facilitating screening for these women; and found that collaboration between private, public non-profit and government, and academic organizations can enhance and improve the effectiveness and sustainability of community-based health promotion. The program was delivered to 27,494 women at 68 YWCA's in 28 states throughout the U.S. between July 1, 1995, and June 20, 1996. The study also found that the program was successful at getting women in need of mammogram and Pap test screening to obtain that screening within six months after attending an education program (Fernandez, DeBor, Candreia, Wagner and Stewart, 1999).

The Do it for me, mom program is similar to this program in philosophy but not type of evaluation. The Encore Plus program implemented a follow-up portion that evaluates the program's effectiveness on behavior change of participants within six months following program attendance.

A study of the North Carolina Breast and Cervical Cancer Control Program (BCCCP) focuses on health education activities in communities to recruit women into their screening program. The study involved evaluating 88 BCCCP contractors (including 77 health departments and one community health center). The purpose of the intervention was to determine if health education programs motivate women to

participate in screening programs. Even though funding was available, other barriers (knowledge of screening importance, fear and prudery) kept women from screening participation. The study concludes that health educators make a difference in the utilization of screening programs by helping break down barriers to receiving necessary care (Holden, 1998).

Review of the above programs, Encore Plus, CDC's National Breast and Cervical Cancer Early Detection Program, and the North Carolina Breast and Cervical Cancer Control Program reveals that community collaboration cervical and breast programs that combine education and clinical services are effective in reaching underserved women. The Do it for me, mom program is a collaborative cervical and breast health awareness program that aims to increase knowledge about cervical and breast health through health education sessions.

Behavior Theories

In order to influence the health behavior of individuals, we must understand theories that focus on human behavior. The Health Belief Model (HBM) and the Theory of Reasoned Action (TRA) are two theories that explain human behavior change and serve as frameworks for intervention programs.

The HBM was originally designed in the 1950s by the U.S. Public Health Service to explain lack of participation in prevention and early detection programs (Rosenstock, 1974). The goal of the Health Belief Model is to explain the change and maintenance of an individual's health behavior. The key concepts of the HBM are perceived

susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy (Glanz, et al., 1997).

The HBM proposes that a woman will perform cervical and breast cancer screenings (Pap test, breast-self examination, clinical breast exam, and mammography) if she believes she is susceptible to breast and cervical cancer and she recognizes that breast and cervical cancer have serious consequences. Perceived susceptibility relates to the participant's opinion of her risks of being diagnosed with breast and/or cervical cancer. While perceived severity is her opinion of how serious getting breast and/or cervical cancer would be. Perceived susceptibility and perceived severity combine to yield what is known as perceived threat of disease.

Once a woman has established a perceived threat of disease, she must then weigh her perceived benefits vs. her perceived barriers. Her perceived benefits are the ability she sees in cervical and breast cancer screenings to detect breast and/or cervical cancer at an early stage, therefore increasing her survival rate. Perceived barriers are the costs of the screenings, whether financial or emotional. The benefits of surviving the disease must outweigh the barriers. Intervention programs can reduce perceived barriers through reassurance, correction of misinformation, incentives, and financial and instructional assistance in obtaining screenings (Figure 1).

Self-efficacy is also an important construct of the HBM that can also serve as a barrier to receiving screenings. Bandura explains self-efficacy as "the conviction that one can successfully execute the behavior required to produce the outcomes" (1977). A woman's self-efficacy would be her confidence to effectively perform a breast self-exam

(BSE) and the ability to obtain clinical services (CBE, Pap, and mammogram). The HBM includes cues to action as an important behavior change factor. Cues to action for cervical and breast screenings are health education sessions, and reminder systems to trigger action such as shower cards that remind women to do BSE. In addition to cues to action and self-efficacy, the HBM recognizes that sociodemographic factors and/or other factors influence an individual's perception of susceptibility, severity, benefits, and/or barriers. Which in turn determines behavior (Glanz, et al., 1997).

The Theory of Reasoned Action (TRA) involves recognizing the human need for motivational factors to performing specific behaviors, such as cervical and breast screenings. The constructs of TRA include measures of attitude and social normative perceptions that determine behavioral intent (Glanz, et al., 1997). The TRA was developed by Fishbein in 1967 to understand the relationship between attitudes and behavior.

The TRA identifies behavioral intention as the most effective stimulus to behavior change. The TRA recognized two types of determinants to behavior intent, direct and indirect. Direct determinants are attitude toward the behavior and the individual's subjective norm associated with the behavior. Indirect determinants are behavioral beliefs, evaluations of behavioral outcomes, normative beliefs, and motivation to comply. Behavioral beliefs and evaluations of behavioral outcomes influence the individual's attitude toward behavior; normative beliefs and motivation to comply influence the individual's subjective norm (Glanz, et al., 1997).

With application of the TRA to a breast and cervical health awareness program, a woman will perform BSE and get Pap tests, CBE, and mammograms done when she has the behavioral intention to do so. This behavioral intention results from two things -- her attitude toward the behavior and her subjective norm associated with the behavior (performing BSE and getting Pap tests, CBE, and mammograms). Personal beliefs about the outcomes of cervical and breast cancer screenings and the evaluation of those outcomes are what influence her attitude toward the behavior. If a woman fears the detection of cancer but realizes that early detection will increase her survival, she will have a positive attitude toward the behavior. Motivation to comply with screening guidelines and normative beliefs about screening performance influence a woman's subjective norm. If a referent (physician or health educator) recommends a screening and the woman is motivated to comply with the recommendation, she will have a positive subjective norm. A negative subject norm results if the referent does not convince the participant that the screening is important and she is not motivated to comply (Figure 2).

The Health Belief Model and the Theory of Reasoned Action provided a basis for health promotion programs. They provide grounded ideas toward influencing healthy behaviors among program participants. Teaching women the importance of breast and cervical cancer screenings and helping them to recognize and remove barriers to obtain screenings enables them to take control of and improve their own health.

CHAPTER III

METHODS

Program Description

The local program being studied, Do it for me, mom, is a collaborative health program striving to improve the health of Tarrant County women. Its mission is to collaboratively provide breast and cervical health education and screening to women in locations where their children receive care, education and/or other services. The program achieves this by providing access to early detection techniques (Paps and mammograms) through a network of health services. Do it for me, mom believes that women neglect themselves in order to take care of their families. Therefore, the program strives to motivate women to improve their health so they will be able to better care for their families (Adams, 1998). Providing education in a fun, safe, and convenient environment increases knowledge and encourages women to improve their health while increasing motivation to comply with important screenings.

A Do it for me, mom session consists of two components: one on breast health and the other on cervical health. The breast health component includes breast cancer statistics (epidemiology, incidence, survival and mortality rates), risk factors, normal breast anatomy, benign breast processes, signs, and symptoms of breast cancer, and screening guideline recommendations (breast self examinations, regular mammography,

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and clinical breast exams). The cervical health presentation includes cervical cancer statistics (epidemiology, incidence, survival and mortality rates), risk factors, normal cervical anatomy, benign cervical conditions, signs, and symptoms of cervical cancer, and importance of regular pap smears and pelvic examinations (Appendix A).

Trained health educators use a variety of tools during the programs including written literature, videos on breast self-examination and cervical health, lifelike breast models, Pap smear teaching kits and model speculums. Mini-breast models, available in both beige and brown, and literature covering a variety of cancer prevention/early detection topics are also distributed to each participant to use for future reference and cues to action. Educators represent a variety of ethnic and cultural backgrounds. When necessary, the program is presented in Spanish, primarily by the staff of the Hispanic Outreach Program.

This research project is a formative, process, and a partial impact evaluation of the Do it for me, mom program. Formative evaluation provides information regarding the current progress of the program and will guide the program to future improvement (Rossi, 1999). Process evaluation reveals, "whether the program is serving the targeted population and whether the population being served is more or less than expected". Impact evaluation measures any changes made in the population's knowledge, attitude, behaviors, or beliefs; it informs planners whether they are making progress toward their goals (Friis & Sellers, 1999).

Protection of Human Subjects

The approval to conduct this study was granted from the Institutional Review Board of the University of North Texas Health Science Center. Because this study used data from a secondary source and did not require a consent form, an exempt status was declared.

Measurement/Instrumentation

Three instruments were used to collect data in this study: a participant questionnaire (Appendix B), and pretest and posttest (Appendix C) knowledge assessments. This data was collected by Do it for me, mom staff and volunteers at programs conducted during the year 2000 in Tarrant County. These women or their organization were invited to attend and selected Do it for me, mom to educate them rather than Do it for me, mom selecting them for program implementation.

At twenty-one programs conducted by Do it for me, mom, 302 participants completed questionnaires, 295 completed pretests, and 274 completed posttests. Programs were conducted at childcare centers (7), faith-based organizations (7), women's organizations (4), worksites (2), and one apartment complex. Program group size ranged from 3 to 44 participants; all participants were women.

Tools for evaluation were previously developed by the Do it for me, mom coalition made up of staff and volunteers. The participant questionnaire was implemented to gather demographic information (age, zip code, educational level, insurance status, employment status, and ethnicity), current screening compliance (Pap and mammogram tests), and attitudes, behaviors and beliefs regarding cervical and breast

health (See Appendix B). The demographic information is obtained through six questions and other quantitative data is obtained through fourteen multiple-choice questions. The participant questionnaire is performed at the end of the educational session.

The pretest and posttest data reveals the participants' knowledge level before and after education. Both the pretest and posttest contain the same five questions, three on breast health and two on cervical health, which will reveal the information absorbed by participants at the end of the education program. The items in the pretest and posttest are multiple-choice questions where participants are allowed to choose responses from a list of predetermined answers.

The validity of the instruments used in the study was previously determined by an expert panel of Do it for me, mom committee members. The expert panel reviewed the instruments' items for content validity.

Two databases were created in Statistical Packages for Social Sciences (SPSS). One database designed for the participant questionnaire and one for the pretest and posttest. In the participant questionnaire database, variables are based on the established criteria: age of participant, zip code of participant's residence, educational level, insurance status, employment status, ethnicity, current screening compliance (occurrence of breast self examination (BSE) performance, last Pap and/or mammogram), participant's beliefs regarding BSE and PAP importance, barriers to complying with screening recommendations (Pap and/or mammography), participant's BSE instructor,

identification of examiners of breast exams and Pap tests, family history of breast cancer, and prior attendance of breast or cervical program.

In the pretest and posttest database, variables are based on answers to the five multiple-choice questions. Variables include values designated to the selected response to the answer. The five variables, three on breast health and two on cervical health, reveal the information absorbed by participants at the end of the education program.

Statistical Analysis

SPSS was used to perform statistical analysis (descriptive statistics and chi-square tests). Hypothesis 1): The majority of the women who attended Do it for me, mom programs in Tarrant County in the year 2000 are women who meet the criteria for being underserved as determined by the descriptive proportions of the demographics obtained from the participant questionnaire. Hypothesis 2): The women served by Do it for me, mom programs in the year 2000 have lower compliance than national averages was determined by descriptive analysis of the compliance variables. A t-test comparison of race/ethnic group analysis of screening barriers and a chi-square analysis was conducted to determine if racial difference exist in screening barriers. Hypothesis 3): Program participants will demonstrate knowledge gained in scores of pre-tests and post-tests are evaluated by group mean t-test comparison.

Circumstances that may limit the interpretation of data include missing data from incomplete questionnaires and/or pretests and posttests. Incomplete information could result from the layout of the questionnaire, since questions appear on both sides of the paper the questionnaire may not have be completed properly. Do it for me, mom

corrected this issue by adding a statement "please complete other side" at the bottom of the questionnaire. The questionnaire includes self-reported data that presents a recall bias regarding mammogram and/or Pap test compliance. Other limitations include errors in questionnaires and/or pretests and posttests implementation by program staff or volunteers.

CHAPTER IV

RESULTS

This study was designed based on a secondary questionnaire that will reveal the characteristics of the participants. The participant questionnaire was administered at the end of the educational program, after the posttest. The pretest and posttest comparison will identify the participants cervical and breast health knowledge before and after educational intervention. The data was analyzed through descriptive and inferential statistical procedures. The hypotheses and their respective findings will be discussed in this chapter.

Description of Sample

A convenience sample of 302 participants from 21 Do it for me, mom programs completed the participant questionnaire. Of the 302 participants, 263 provided demographic information. Participants' ages ranged from 11 to 78 years of age with a mean age of 39.33 years (SD=13.93). Ages were coded into categories as seen in Table 1. Other demographic information is provided in Table 1 such as ethnicity, education, employment, and insurance status.

Findings

This section includes data analysis of the participant questionnaire and pretests and posttests in reference of the three research hypotheses. A 0.05 level of probability

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was used to determine the significance of research findings when appropriate to the statistical test

Hypothesis 1

The majority of the women who attended Do it for me, mom programs in the year 2000 in Tarrant County are women nationally determined as underserved.

As previously established in the literature review, underserved women are those who are older ($\geq$65), in rural areas, Hispanic, African American, American Indian or Alaska Native, Asian American or Pacific Islander, and/or women who are medically underserved (do not have health insurance).

Based on statistical analysis of demographics of program participants; only 3.8% (10) of program participants were women ages 65 and older; 20.4% (53) were African American; 8.8% (23) were Hispanic; 1.5% (4) made up the other race category; and 11.2% (30) were uninsured participants. Hispanic participants are not representative of the target population of Do it for me, mom because the participant questionnaire was only recently translated in 2001 to be used among Spanish speaking populations. Table 1 displays descriptive characteristics of the sample.

The intent of this hypothesis was to evaluate the descriptive characteristics of Do it for me, mom participants to determine if they were coincidentally underserved. The purpose of the Do it for me, mom program is to serve busy mothers at convenient locations. The target audience of the year 2000 was not underserved women. However, program stakeholders (funding sources) have concern to see underserved women served

by educational intervention and access to screenings. This concern motivates Do it for

me, mom to emphasize service for underserved women

TABLE 1

Descriptive Characteristics of the Sample

	n	%
Age, years		
17 & under	10	3.8
18-24	32	12.3
25-39	90	34.5
40-49	60	23.0
50-64	59	22.6
65 & up	10	3.8
Race/ethnicity		
White	180	69.2
Black	53	20.4
Hispanic	23	8.8
Other	4	1.5
Education		
Middle School	10	3.9
High School/GED	99	38.8
Community/Tech College	47	18.4
4-year College	44	17.3
Graduate School	42	16.5
Other	13	5.1
Employment		
Yes	183	69.6
No	80	30.4
Insurance		
Private (HMO/PPO)	193	71.7
Medicaid	3	1.1
Medicare	11	4.1
Military	13	4.8
Unsure	19	7.1
No insurance	30	11.2

Hypothesis 2

The women served by Do it for me, mom programs in the year 2000 in Tarrant County have lower screening compliance than national averages.

One hundred and twenty nine of the women surveyed were mammogram eligible women, those over forty years old. Of those women: 51.6% (63) reported having a mammogram less than one year from the date surveyed, 18.9% (23) reported having one a year ago, 9.8% (12) two years ago, and 11.5% (14) reported never having a mammogram. According to 1999 Behavioral Risk Factor Surveillance System (BRFSS) data, 69.5% of American women received a mammogram in the past year.

When asked to report on Pap test compliance, 60.5% (161) of participants received a Pap test less than 1 year before date surveyed; 18.8% (50) reported receiving a Pap test one year ago; 6.4% (17) two years ago; and 6.4% (17) reported never having a Pap test. As noted in the literature review, 69.2% of American women surveyed in the BRFSS had a Pap smear in the last year.

Comparison could not be deemed significant because only national averages are given; BRFSS data was not available to determine a significant difference. In addition, the participant questionnaire did not provide an option to answer "greater than three years" for questions two and ten that pertained to last Pap test and last mammogram.

Usually, financial and emotional barriers influence screening compliance. When the women in this study were asked to identify barriers to obtaining Pap tests and mammograms very few selected barriers to screening. Only 19.0% of participants reported one barrier to obtaining Pap tests; 7.5% reported two; 1.9% reported three or

more barriers; and 71.6% did not report having any barriers. Only 21.9% of participants reported one barrier to obtaining mammograms, 8.6% reported two, and 2.4% reported three or more barriers; 67.2% did not report having any barriers.

Cross tabulation was performed on the race of the participant and barriers to obtaining Pap tests and/or mammograms, chi-square analysis was performed to determine if certain races reported more barriers to screening than others. Chi-square analysis reveals that no significant difference exists among races and the number of barriers reported for either Pap tests or mammograms.

Hypothesis 3

Program participants will demonstrate a significant increase of knowledge about cervical and breast cancer early detection techniques and risk factors

To address hypothesis C, cross tabulations were performed. Comparisons were made on pretest and posttest responses as to whether or not the study participants demonstrated an increase in cervical and breast health knowledge (Table 2). Pretests were tabulated for 295 participants with a mean score of 3.21 out of 5 possible points (SD = 1.2). Posttests were tabulated for 274 participants with a mean score of 4.46 (SD = 0.81). An independent samples test reveals statistical significance of a positive mean score difference of 1.25 ($p = .000$).

TABLE 2

Group Mean Comparison

Test Type	n	Mean Score	Standard Deviation
Pretest	295	3.206	1.198
Posttest	274	4.463	0.812

The results of individual pretest and posttest questions are illustrated in TABLE 3. More breast health questions (Nos. 1 - 3) were answered correctly at pretest than cervical health questions (Nos. 4 & 5). This justifies the need to include cervical health education along with breast health education. Question No. 2 is the breast health question with the lowest pretest score; 48% of the women did not know when to examine their breasts. Because of normal monthly breast changes, it is easier to detect changes in the breast when done at the same time every month (ACS, 2000). Tables 3 and 4 provide further detail of pretests and posttests. Overall, all pretests and posttests identify a significant increase in cervical and breast knowledge.

TABLE 3

Frequencies and Responses to Pretests and Posttests

Item	Best Response Options	Pretest Response	Posttest Response
1. To perform a complete Breast Self Examination, you should examine your breasts:	All of the above	81% (238)	93% (255)
2. If you are still having periods, when should you examine your breasts?	5-7 days after the start of your period	52% (154)	87% (238)
3. Most breast changes (lumps, discharges, etc.) indicate the presence of cancer	FALSE	76% (225)	87% (239)
4. When should you have your first pap smear?	Age 18 or when you first have sex	54% (159)	85% (233)
5. The number of sex partners a woman has had may increase her risk of cervical cancer.	TRUE	58% (170)	94% (258)

TABLE 4

Pretest and Posttest Comparisons of Cervical and Breast Health Knowledge

How to Perform BSE (No. 1)

		Pre	Post	Total
BSE How	Right	238	255	493
	Wrong	57	19	76
Total		295	274	569

$X^2 = 18.837, p = 0.001$

When to Perform BSE (No. 2)

		Pre	Post	Total
BSE when	Right	154	238	392
	Wrong	141	36	177
Total		295	274	569

$X^2 = 79.622, p = 0.000$

Breast Changes (No. 3)

		Pre	Post	Total
Changes	Right	225	239	464
	Wrong	70	35	105
Total		295	274	569

$X^2 = 11.329, p = 0.001$

When to have first Pap (No. 4)

		Pre	Post	Total
First Pap	Right	159	233	392
	Wrong	136	41	177
Total		295	274	569

$X^2 = 65.871, p = 0.000$

Sexual partner increase risk of cervical cancer (No. 5)

		Pre	Post	Total
HPV risk	Right	170	258	428
	Wrong	125	16	141
Total		295	274	569

$X^2 = 101.719, p = 0.000$

CHAPTER V

DISCUSSION

The results of this study provide conclusions that will assist in future community health interventions involving health education. The conclusions show that program participants have screening compliance trends consistent with those of American women and educational interventions can increase knowledge that may influence participants' attitudes and beliefs about important screenings (Glanz, et al., 1997; Fernandez, et al., 1999; Lawson, et al., 2000).

Conclusion

This study aimed to prove the following hypotheses: "The majority of the women who attended Do it for me, mom programs in the year 2000 in Tarrant County are women nationally determined as underserved," "The women served by Do it for me, mom programs in the year 2000 in Tarrant County have lower screening compliance than national averages," and "Program participants will demonstrate a significant increase of knowledge about cervical and breast cancer early detection techniques and risk factors."

The results from the participant questionnaire addressed Hypothesis 1 and 2. The findings showed that the majority of Do it for me, mom participants are not underserved women, however, a portion of Do it for me, mom's audience did meet the characteristics of being underserved. Characteristics include being older (> 65), in rural areas,

Hispanic, African American, American Indian or Alaska Native, Asian American or Pacific Islander, and/or women who are medically underserved (NCI, 1999). The program served a small portion of women over 65. However, the majority of the women served were between the ages of 25-39, reaching women at an earlier age to influence future healthy screening behaviors (Glanz, et al., 1997). The study included a low percentage of Hispanics and African Americans. The Do it for me, mom program did educate more than 900 Spanish-speaking women in the year 2000. However, these women weren't surveyed because of lack of translated instruments. The study did include 54 (20.4%) African Americans. African Americans make up 12.8% of the Tarrant County population (U.S. Census Bureau, 2000).

The results of this study will enable the Do it for me, mom program to develop strategies to target more underserved women and those at higher risk for breast and cervical cancer.

The questionnaire findings determined that the screening compliance of Do it for me, mom participants of both Pap tests and mammograms were consistent with those of American women who participated in the national BRFSS study. The study could not determine statistical significance of the comparison but shows basic trends of participant screening behaviors. It is possible that a selection bias could be present as the majority of women who attended Do it for me, mom programs were not statistically considered underserved and did not have low screening compliance. These women or their organization were invited to attend and selected Do it for me, mom to educate them rather than Do it for me, mom recruiting them for program implementation.

The effects of the pretest and posttest instrument measured the improvement of cervical and breast knowledge among program participants. The importance of breast and cervical education components are seen in the level of knowledge increase of each question after education. The findings indicated that education intervention was instrumental in increasing the level of knowledge through this type of health awareness program.

Implications

Recommendations for improvement of current evaluation methods:

1.) To prevent bias of participants, program questionnaire should be administered prior to the educational intervention along with the pretest to avoid influence from education program content.

2.) The questions regarding mammography and Pap test questions should be compatible with similar questions on the Behavioral Risk Factor Surveillance System. This will allow the program to more accurately compare the screening behaviors of their participants with those of national averages.

3.) Questions should be added to the posttest to identify the participants' intent to participate in breast and/or cervical screenings, thus revealing the participants' behavioral intent influenced by motivation to comply provided by the educational intervention (Figure 2).

4.) Adjust the pretests, posttests, and participant questionnaire to include an identification number that will link the instruments. This will allow

knowledge gained data to be compared among demographic characteristics of program participants.

Recommendations for further study include the following:

1.) A longitudinal study for determining whether behavior changes occur following an educational intervention. This study may be conducted with the implementation of a follow-up questionnaire tracking the behavior changes (compliance with breast-self examination, clinical breast examinations, mammograms, and Pap tests). Changes in behavior can be tracked six months following education and then a year following education.

2.) A study determining effectiveness of program educators on participant knowledge based on the pretest/posttest questionnaire model and performs qualitative observation of practices among effective educators. The teaching style and effectiveness of the educator may influence the retention of cervical and breast health knowledge among participants.

Figure 1. Health Belief Model Components and Linkages (adapted from Glanz, et al., 1997)

Individual Perceptions   Modifying Factors   Likelihood of Action

Age, ethnicity, knowledge, health-consciousness, family history of breast and/or cervical cancer

Perceived benefits and barriers to performing BSEs, getting mammograms, CBEs, and Pap tests.

Perceived susceptibility of getting breast and/or cervical cancer; perceived severity of breast and/or cervical cancer

Perceived threat of breast and/or cervical cancer

Likelihood of clients performing BSEs, getting mammograms, CBEs, and Pap tests.

Cues to action:
        Health education
        Shower cards
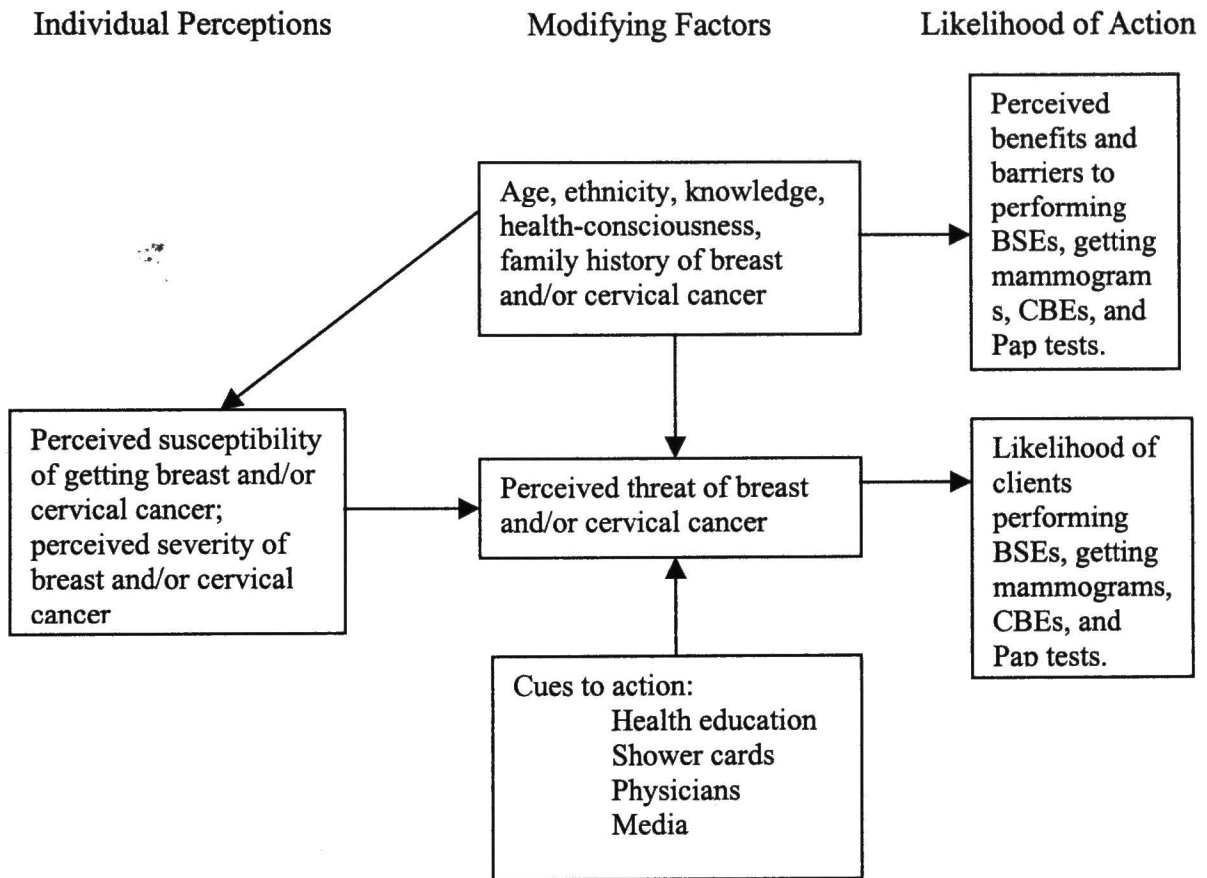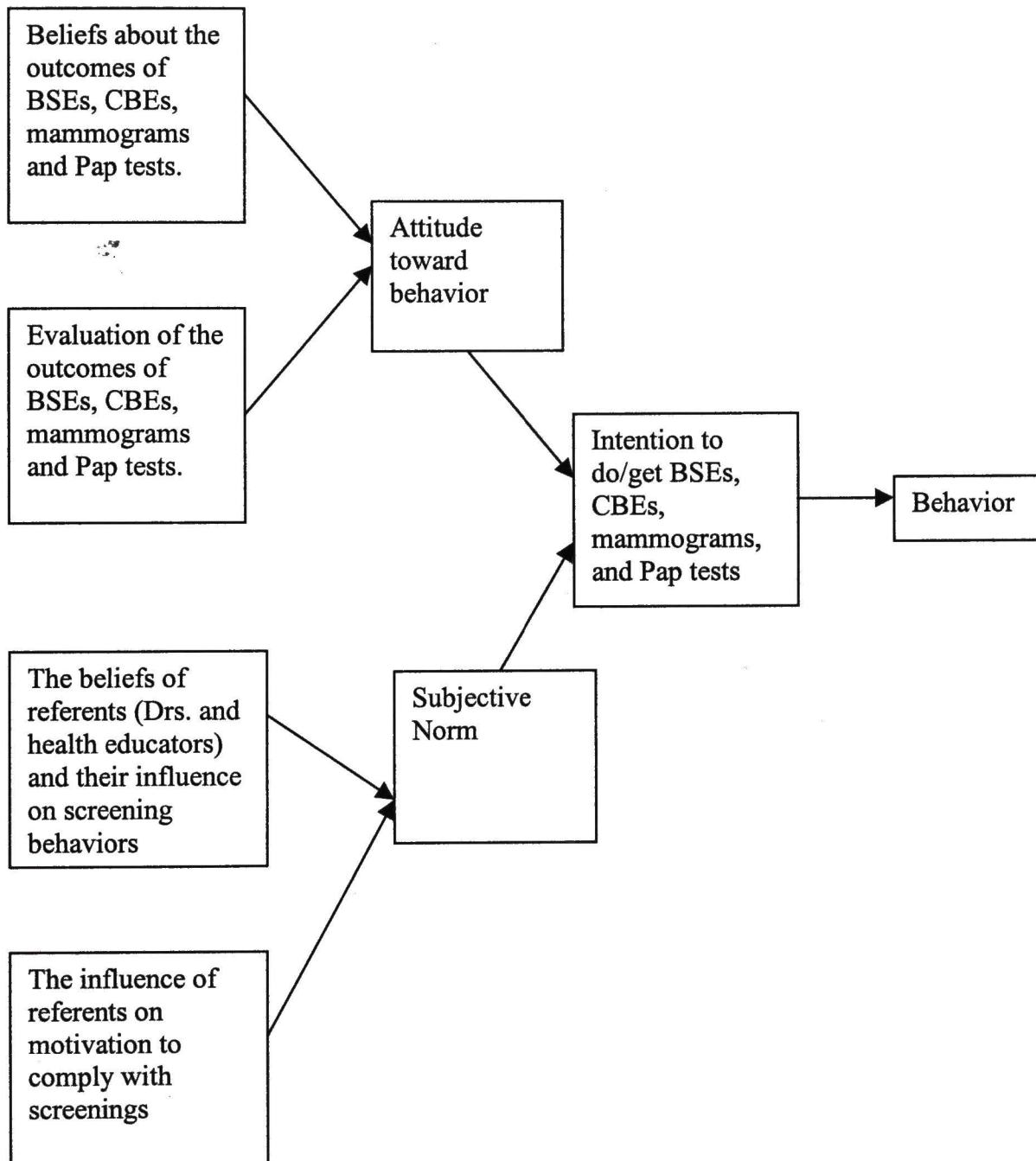   Physicians
        Media

Figure 2. Theory of Reasoned Action Components and Linkages (adapted from Glanz, et al., 1997)

APPENDIX A

Do it for me, mom.®
Cervical & Breast Health Awareness Program
Curriculum
Do it for me, mom.®
Cervical and Breast Health Awareness Program

Education Program Outline

<u>AT THE SITE</u>

1. Set up literature table.

2. Welcome and introduce self, thank hostess and present tote bag.

3. Pass around sign-in sheets (yellow sheets) and raffle tickets. (Please use ink pens.)

4. Administer Pre-Test:
   Distribute forms and pencils. Explain that this is a fun survey to assess their individual knowledge of cervical and breast health practices. There are only 5 questions, so it should only take about 1 minute to complete. COLLECT THE FORMS.

Breast Health Program Outline

1. State purpose and objectives: We will teach you about caring for your breasts: how to perform a breast self-exam, how often to have a clinical breast exam and when to have a mammogram. We will also tell you a little about breast diseases, the normal breast anatomy, discuss signs and symptoms of breast cancer and risk factors for breast cancer.

2. Distribute breast health materials from the Standard List (attached).

3. Show breast video.

4. Using the Caring for Your Breasts booklet, cover the following:
   Risk factors (p. 5)
   Normal breast anatomy (p. 6)
   Non-cancerous breast changes (p.8-9)
   Signs of breast cancer (p. 10)
   Regular mammography (p. 14)
   Regular breast exams (p. 15)

5. Pass around the full size breast model to let participants feel for lumps.

6. Allow time for question and answer.

Cervical Health Program Outline

State purpose and objectives: We will teach you about having a pelvic exam and pap test, how to prepare for the exam, and how often to have a pap test. We will also talk a little about the normal cervical anatomy, cervical diseases, discuss signs and symptoms of cervical cancer and risk factors for cervical cancer.

1. Distribute cervical health materials from attached Standard List.

2. Conduct education program using attached Cervical Program Script, pp. 2-6.
   Discuss the statistics and risk factors associated with cervical cancer
   Describe the anatomy and physiology of the cervix
   List common non-cancerous cervical problems
   Describe signs and symptoms of cervical cancer
   Describe the method of early detection for cervical cancer
   Describe procedures used to diagnose cervical cancer
   Describe common treatment modalities for cervical cancer

3. Show the Pap test video if applicable

4. Allow time for question and answer period.

Closing

1. Pass out Post-test, allow 1 minute for completion and go over answers if there is time.

2. Distribute participant questionnaire, and allow time for completion. Encourage all to complete this so that we can continue to improve the program. Tell participants we will assess from the sign-in sheets and questionnaires the need for on site services. The mobile unit can be scheduled on-site if adequate appointments are secured.

3. For those needing immediate help, contact Tarrant County BCCCP, 817-871-7500 or the Doris Kupferle Breast Center, 817-820-4800. Also, refer participants to clinic list (table literature) for services in their neighborhood.

4. Refer participants to the literature table and talk about what information is available.

5. Raffle door prizes.

6. Collect all forms, excess literature and return supplies to DIFMM office as soon as possible. Please make sure that all forms are marked with the location's name and program date.

7. Complete Educator's evaluation.

APPENDIX B

PARTICIPANT QUESTIONNAIRE

Do it for me, mom.®
Cervical and Breast Health Awareness Program
<u>**Participant Questionnaire**</u>

<u>Please check the best answer.</u>

1. How important do you think it is for a woman to perform a breast self-exam every month?
    ___ Very Important   ___ Important   ___ Somewhat Important
    ___ Not Important   ___ Unsure

2. When was your last mammogram?
    ___ Less than one year   ___ 1 year   ___ 2 years
    ___ Unsure   ___ Never

3. Who taught you to perform breast self-exams? (check one)
    ___ Doctor   ___ Relative
    ___ Nurse / Nurse Practitioner   ___ Given a booklet
    ___ Friend   ___ No one
    ___ Teacher   ___ Other _____

4. How often do you perform breast self-exams? (check one)
    ___ Once a month   ___ Once a year   ___ 2-4 times a year
    ___ 5-8 times a year   ___ 9-11 times a year   ___ never

5. Who other than yourself examines your breasts (check all that apply)?
    ___ Husband / Partner   ___ Nurse practitioner (NP)
    ___ Physicians Assistant (PA)   ___ Other _____
    ___ Doctor

6. Have any of the following relatives had (or have) breast cancer? (Check all that apply.)
    ___ Mother   ___ Sister
    ___ Your mother's mother   ___ Your mother's sister

7. Have any of the following ever kept you from getting a mammogram? (Check all that apply.)
    ___ Fear of the test   ___ Cost of test
    ___ Transportation   ___ No insurance
    ___ No doctor / nurse   ___ Did not know I needed one
    ___ Previous bad experience
    ___ Preferred a female to perform the test & one was not available
    ___ Couldn't get an appointment that fit into my work/school schedule
    ___ Other _____

8. Have you ever attended a breast health education program before?
    ___ Yes   ___ No   ___ Unsure

9. How important do you think it is for a woman to receive a pap smear every year?
    ___ Very Important   ___ Important   ___ Somewhat Important
    ___ Not Important   ___ Unsure

(complete other side)

10. When was your last Pap smear?
    ___ Less than one year   ___ 1 year   ___ 2 years
    ___ Over 2 years   ___ Unsure   ___ Never

11. Who performed your last Pap smear (check one)?
    ___ Doctor   ___ Nurse Practitioner (NP)
    ___ Physician's assistant (PA)   ___ Other _____

12. Have any of the following ever prevented you from getting a pap smear?
    ___ Fear of the test   ___ Cost of test   ___ Transportation
    ___ No insurance   ___ No Doctor   ___ Previous bad experience
    ___ Preferred a female to perform the test & one was not available
    ___ Couldn't get an appointment that fit into my work/school schedule
    ___ Did not know I needed one   ___ Other _____

13. Have you ever attended a cervical health education program before (check one)?
    ___ Yes   ___ No   ___ Unsure

14. Which of the following do you do now? (Check all that apply)
    ___ Perform breast self exam every month
    ___ Have a yearly Pap smear
    ___ Have a yearly clinical breast exam and/or mammogram

Please take a few moments to complete the following:

Age _____   Zip code where you live _____

Last grade completed:
___ Middle school   ___ High school / GED   ___ Community/ Technical College
___ 4-Year college   ___ Graduate school   ___ Other: _____

Type of health insurance (check one):
___ Private Insurance (HMO, PPO, Other)   ___ Military
___ Medicaid/ STAR   ___ Unsure
___ Medicare / Medicare HMO   ___ No Insurance

Do you work outside of the home?
___ Yes ___ No If Yes, What kind of work do you do? _____

Race: ___ White(Not Hispanic/Latino Origin)   ___ Hispanic/Latino(a)
             ___ African American/Black   ___ Asian/Pacific Islander
             ___ American Indian/Alaskan Native
             ___ Other_____

APPENDIX C

PRETEST AND POSTEST

Do it for me, mom.®
Cervical and Breast Health Awareness Program
Pretest and Postest
(Please answer with a check mark.)

1. To perform a complete Breast Self Examination, you should examine your breasts:

   _____ lying down
   _____ in the shower
   _____ looking in the mirror at your breasts
   _____ all of the above

2. If you are still having periods, when should you examine your breasts?

   _____ 5-7 days **before** your period begins
   _____ during your period
   _____ 5-7 days **after the start of** your period
   _____ the last day of each month

3. Most breast changes (lumps, discharges, etc.) indicate the presence of cancer.

   _____ True
   _____ False

4. When should you have your **first** pap smear?

   _____ when you get married
   _____ age 21
   _____ age 18 or when you first have sex
   _____ when you begin your period

5. The number of sex partners a woman has had may increase her risk of cervical cancer.

   _____ True
   _____ False

REFERENCES

Adams, B.N. (1998). Do it for me, mom: A collaborative community partnership for cervical and breast health awareness. Unpublished report.

American Cancer Society (2001). Cancer Facts & Figures 2001. Atlanta, GA: Department of Epidemiology and Surveillance Research.

American Cancer Society (2000). Breast Health Awareness Instructors Course Manual. Austin, TX: American Cancer Society, Texas Division, Inc.

American Cancer Society (1999). Breast Cancer Facts & Figures 1999-2000. Atlanta, GA: Department of Epidemiology and Surveillance Research.

Bandura A. (1977). Self-efficacy: Toward a unifying theory of behavior change. Psychological Review, 84, 191-245.

Burke, W., Daly, M., Garber J., Botkin, J., Ellis Kahn, M.J., Lynch, P., McTiernan, A., Offit, K., Perlman, J., Patersen, G., Thomson, E., & Varricchio, C. (1997). Recommendations for follow-up care of individuals with an inherited predisposition to cancer. II. BRCA1 and BRCA2. Journal of American Medical Association, 277(12), 997-1003.

Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion. (1999). Behavioral Risk Factor Surveillance System: 1996-1997 Survey Data. [On-line] http://apps.nccd.cdc.gov/brfss.

Cox, J.T. (1999). New primary cervical screening technologies. The Female Patient, 24, 12, 17-18, 21-22, 24, 29-31, 32.

Ernster V.L., Barclay, J., Kerlikowske, K., Grady, D., & Henderson, I.C. (1996). Incidence of and treatment for ductal carcinoma in situ of the breast. Journal of American Medical Association, 275, 913-918.

Fernandez, M.E., DeBor, M., Candreia, M.J., Wagner, A.K., & Stewart, K.R. (1999) Evaluation of Encore plus: A community-based breast and cervical cancer screening program. American Journal of Preventative Medicine, 16 (3S), 35-49.

Fishbein, M. (1967). Readings in attitude theory and management. New York, NY: Wiley.

Friis, R.H. & Sellers, T.A. (1999). Epidemiology for public health practice. Gaithersburg, MD: Aspen Publishers, Inc.

Glanz, K., Lewis, F.M., & Rimer, B.K. (Eds.) (1997). Health behavior and health education: Theory, research, and practice. San Francisco, CA: Jossey-Bass Publishers.

Henson, R.H., Wyatt, S.W., & Lee, N.C. (1999). The national breast and cervical cancer early detection program. In Brownson, R.C., Baker, E.A., & Novick, L.F. (Eds.) Community-based prevention: Programs that work (pp. 122-139). Gaithersburg, MD: Aspen Publishers, Inc.

Holden, D.J., Moore, K.S., & Holliday, J.L. (1998). Health education for a breast and cervical cancer screening program: using the ecological model to assess local initiatives. Health Education Research, 13(2), 293-299.

Institute of Medicine, Committee for the study of the Future of Public Health. (1988). The future of public health. Division of Health Care Services, Institute of Medicine. (pp. 112-113). Washington, D.C.: National Academy Press

Kerlikowske, K., Grady, D., Rubin, S.M., Sandrock, C., Ernster, V.L. (1995). Efficacy of screening mammography. A meta-analysis. Journal of the American Medical Association, 273: 149-154.

Lawson, H.W., Henson, R., Bobo, J.K., & Kaeser, M.K. (2000). Implementing recommendations for the early detection of breast and cervical cancer among low-income women. Morbidity and Mortality Weekly Report, 49(RR-2), 37-55.

Martin, L.M., Wingo P.A., Calle E.E. & Health, Jr. C.W. (1996). Comparison of mammography and pap test use from the 1987 and 1992 National Health Interview Surveys: are we closing the gaps? American Journal of Preventive Medicine, 12, 82-90.

Murakami M., Gurski, K.J., & Stellar M.A. (1999). Human papillomavirus vaccines for cervical cancer. Journal of Immunotherapy, 22 (3), 212-218.

National Cancer Institute (2000a) Cancer Facts. Human papillomaviruses and cancer. [On-line] http://rex.nci.nih.gov/, October 24, 2000.

National Cancer Institute (2000b). What you need to know about breast cancer. [On-line] http://cancernet.nci.nig.gov/, July 6, 2001.

National Cancer Institute. (1999). Breast and Cervical Cancer Programs In Your Community: A Guide for Outreach, Screening, and Follow-up Care. Bethesda, MD: National Cancer Institute.

National Center for Chronic Disease Prevention and Health Promotion. (1999). Behavioral Risk Factor Surveillance System: 1996-1997 Survey Data (CD-ROM). Atlanta, GA: Centers for Disease Control and Prevention.

Rosenstock, I.M. (1974). Historical origins of the health belief model. Health Education Monographs, 2, 238-335.

Rossi, P.H., Freeman, H.E., & Lipsey, M.W. (1999). Evaluation: A Systematic Approach. Thousand Oaks, CA: Sage Publications.

Schiffman, M.H., Brinton, L.A., Devesa, S.S. (1996). Cervical Cancer. In Schottenfeld, D. & Fraumeni, Jr., J.F. (Eds.) Cancer Epidemiology and Prevention. 2nd ed. New York, NY: Oxford University Press, 1090-1116.

Surveillance, Epidemiology, and End Results (SEER) Program Public-Use Data (1973-1998), National Cancer Institute, Surveillance Research Program, Cancer Statistics Branch. [On-line] www.seer.ims.nci.nih.gov, June 19, 2001.

Turnock, B.J. (1997). Public health: What it is and how it works. Gaithersburg, MD: Aspen Publications.

U.S. Census Bureau (2000). Census 2000 Redistricting Data. [On-line] http://factfinder.census.gov, July 24, 2001.

U.S. Department of Health and Human Services (2001). Healthy People 2010: Healthy People in Healthy Communities. DDHS Pub. No. Washington, D.C.: U.S. Government Printing Office.

Whittemore, AS, Gong, G., & Itnyre. (1997). Prevalence and contributions of BRCA1 mutations in breast cancer and ovarian cancer: results from three population based case-control studies of ovarian cancer. <u>American Journal of Human Genetics, 60</u>: 496-504.