Ross, Dolores Toni

LOCUS OF CONTROL, SMALL GROUP METHODS AND BREAST CANCER EARLY DETECTION

City University of New York PH.D. 1983

PLEASE NOTE:

In all cases this material has been filmed in the best possible way from the available copy. Problems encountered with this document have been identified here with a check mark __✓__.

1. Glossy photographs or pages _____
2. Colored illustrations, paper or print _____
3. Photographs with dark background _____
4. Illustrations are poor copy _____
5. Pages with black marks, not original copy __✓__
6. Print shows through as there is text on both sides of page _____
7. Indistinct, broken or small print on several pages __✓__
8. Print exceeds margin requirements _____
9. Tightly bound copy with print lost in spine _____
10. Computer printout pages with indistinct print _____
11. Page(s) _____ lacking when material received, and not available from school or author.
12. Page(s) _____ seem to be missing in numbering only as text follows.
13. Two pages numbered _____. Text follows.
14. Curling and wrinkled pages __✓__
15. Other _____

LOCUS OF CONTROL, SMALL GROUP METHODS AND BREAST CANCER EARLY DETECTION

by

D. TONI ROSS

A dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.

1983

This manuscript has been read and accepted for the Graduate Faculty in Psychology in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

1/25/83
date

Morton Bard
Chairman of Examining Committee

January 25, 1983
date

Herbert C. Schulberg
Executive Officer

Professor Morton Bard

Professor Samuel Messick

Professor Florence Denmark

Supervisory Committee

The City University of New York

Abstract

LOCUS OF CONTROL, SMALL GROUP METHODS
AND
BREAST CANCER EARLY DETECTION

by

D. Toni Ross

Adviser: Professor Morton Bard

Despite evidence of the efficacy of breast self-examination (BSE), efforts to motivate women to engage regularly in the practice have yielded limited results. Based on the assumption that locus of control may be important to understanding women's failure to practice BSE this study developed an alternative educational method and compared its effectiveness to standard programs presently available.

Comparisons were made between a newly designed small group method and two standard educational approaches presently available. Program participants were women from within a large business organization randomly assigned to one of the three interventions (n = 103).

It was predicted that women attending the small group program, when compared to standard program participants would: (a) practice BSE more frequenly, (b) perform BSE more competently, (c) report more confidence in their

procedural ability, and (d) specific to breast cancer locus of control expectancies, demonstrate a greater increase in internality and a greater decrease in externality.

Multiple measures of subjects' behavior, obtained one month before and three months following program participation, were submitted to analysis of covariance. While frequency results were not conclusive, Small Group participants showed a significantly greater improvement in competency than subjects in either Standard Program. In contrast, predictions regarding locus of control or self confidence were not supported. No significant differences were found between Small Group participants and those attending Standard Programs for breast cancer locus of control or self confidence.

While not its major focus, this research also tested the validity of the locus of control model to explain women's BSE behavior. Correlations between measures of BSE behavior (frequency and competency) and theoretically relevant predictors (self confidence, breast cancer locus of control internal, chance, and powerful others) were obtained from the subjects' pre-treatment measures. While further study is needed, the results provide preliminary support for the model. Both measures of externality showed a significant negative relationship with BSE frequency and competency. While internality did not predict BSE frequency it was associated with competency which, in turn, was the strongest predictor of frequency.

While findings from this study have numerous implications for further research, of special importance are its implications for future breast cancer risk reduction interventions. Grounded in theory and employing a classical randomized design, its major contribution is a model for other experiments in preventive health program evaluation. It also establishes the importance of competency training in breast cancer early detection programs.

ACKNOWLEDGEMENTS

Support for this research came from a number of sources and I am pleased to have the opportunity to acknowledge them:

The idea of a small group approach to BSE education evolved from doctoral work in Morton Bard's Community Psychology course. Collaboration with Dr. Bard ultimately led to the development of the Women's Health Project, a research effort conducted by the Center for Social Research and sponsored by the American Cancer Society. The research reported here is a part of that project.

Morton Bard, chairman of my committee and mentor, has provided support in many ways. He has nurtured my growth intellectually and professionally. For all that you have done, Mort, thank you.

I also wish to thank other members of my committee, especially Professor Samuel Messick. Sam's guidance in the intricacies of data analysis was of value not only for the task at hand but as a general learning experience in the dangers and delights of data detective work. Professors Irwin Katz and Harold Willensky, serving as outside readers, gave thoughtful comments that were helpful in writing the final manuscript.

Several colleague-friends also provided their support. Dr. Harriet Arnone believed in the importance of this research and especially in its early stages offered encouragement at strategic moments. The development of my ideas

was fostered by discussions with Richard Contrada, who also did battle with the computer. For your support and friendship, I thank you.

Under tense deadlines, two people plowed through innumerable drafts of this paper and always, always came through. While professionalism was undoubtedly a factor, friendship and caring counted more. To my friend Myra Damsky and my mother-in-law Edna Ross, thank you.

Susan Arnold provided her special kind of friendship, a mixture of practical efforts (often in the form of freshly baked goods), benign neglect (when I did not have the time or energy to talk to anyone), and laughter (if we had a chance to chat and catch up). Thank you, Susan.

My son Christopher helped me to keep things in perspective. After all, was a dissertation as serious as his baseball team being tied for first place in the playoffs? Christopher, my sunshine, I love you.

Finally, there is my debt to Charles W. Ross, my friend, lover and husband. When not tending to 75% of the household tasks he focuses on his practice in family medicine. It was his experience as a physician that led him to question me regarding the role psychologists might play in BSE education. Hence it was Chuck who generated the initial stimulus for the work reported here. When I think of the countless ways in which Chuck has provided support, my fondest wish for Christopher is that he will find someone as superb to share his life.

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

LIST OF TABLES

LIST OF TABLES (continued)

LIST OF TABLES (continued)

LIST OF FIGURES

LIST OF APPENDICES

CHAPTER ONE

AN INTRODUCTION TO THE PROBLEM

At some point in her life, one out of eleven women will develop breast cancer (American Cancer Society, 1981). It is the most frequent cancer among women in the United States and ranks second as a cause of death; except for women between the ages of 40-44, for whom it ranks first. While early diagnosis and treatment yields an 85% twenty-year survival rate, most women (55%) in whom breast cancer is detected, are in the later stages of disease causing survival rates to decrease to 56% and less (American Cancer Society, 1981).

Early detection then appears to be crucial. Several studies suggest that women can detect breast cancer in its early stages by examining themselves each month, using a breast self-examination (BSE) technique (Foster, Long, Costanza, Worden, Haines, & Yates, 1978; Greenwald, Rasca, Lawrence, Horton, McGarrah, Gabriele, & Carlton, 1978; Feldman et al., 1980). Indeed, one research group concluded that "each woman in whom breast cancer is destined to develop has in her own hands the possibility of increasing her chance of survival" (Foster et al., 1978). This suggests that women need to be taught the techniques of breast self-examination, and programs have been developed which do just that.

Traditionally these programs employ either individual or large group/lecture methods by a physician or nurse and may include a variety of educational aids such as films, pamphlets or slides. Also, there has been extensive mass media coverage about breast cancer and breast self-examination, particularly after Presidential wife Betty Ford and Happy Rockefeller were treated for the disease in 1974. Apparently, existing educational efforts have affected women's knowledge, attitudes and BSE practices.

In 1973 only 77% of women had heard of breast self-examination and only 55% reported practicing the procedure (Gallup, 1973). By 1980 the vast majority of women were not only aware of BSE (95%) but over three-quarters (77%) claimed to have performed it in the past year (NCI, 1980). Similar improvement extends to frequency of practice. While in 1973 only 18% of women reported performing self-examination on a monthly basis, in 1980, 40% claimed to practice at least once a month (NCI, 1980). Clearly progress has been made toward improving women's BSE behavior.

The problem is that while more women may be doing breast self-examinations, the majority (60%) still fail to perform the technique consistently on a regular monthly basis increasing the likelihood that breast cancer may be found at a later (and prognostically poorer) stage of disease. As Tosteson (1975) pointed out, the acquisition of health knowledge does not assure health-promoting behavior.

Women's failure to examine their breasts each month is, unfortunately, not unlike other widespread health-damaging acts and omissions. Despite public education efforts and an apparent awareness of danger, large numbers of people continue to smoke; to eat and drink excessively; to forget or dismiss the use of seat belts, medications and birth control; and, to ignore treatments prescribed by their physicians. One way of understanding these practices (or non-practices) is to view them in terms of social psychological factors such as locus of control.

Locus of control, a psychological construct, refers to whether or not a person believes that individual behavior can influence the events in one's life (Rotter, 1966). Studies employing this construct to examine health related behaviors suggest that a person's various health promoting or health damaging acts may be expressions of underlying belief systems regarding locus of control. If this is true, the application of this line of reasoning to the question of breast self-examination may hold the key both to understanding current BSE nonpractice and to finding better ways to motivate routine self-examination.

BACKGROUND

Locus of Control and Health Behavior

It is proposed that certain key social psychological factors, specifically locus of control, may mediate women's failure to practice breast self-examination routinely.

Providing a theoretical and empirical base from which the relationship between locus of control and BSE behavior may be specified is Rotter's (1954, 1966) theory of social learning which focuses on locus of control. As indicated earlier, locus of control refers to an individual's expectancies regarding the relationship between his/her behavior and his/her outcome (i.e. reinforcements). Those who believe their own behavior determines events in their life are called internals and are said to have an internal locus of control. In contrast, people who attribute control to other factors such as luck, fate, or powerful others are referred to as externals and are said to have an external locus of control.

Social learning theory has been applied specifically to beliefs regarding health (Wallston & Wallston, 1976; Wallston & Wallston, 1980). Those people who believe that they control the factors that determine their health are said to have an internal health locus of control. A health-internal is likely to agree with an item from the Multidimensional Health Locus of Control Scale (Wallston & Wallston, 1978) that states: "If I take the right action, I can stay healthy." In contrast, people who generally attribute control over health-determining factors to luck, chance or powerful others are considered health externals. A health external is likely to agree with a scale item that states: "Health professionals control my health" (Powerful Others-Health Locus of Control) or "No matter what I do, I'm likely to get sick" (Chance-Health Locus of Control).

While not all efforts to establish a relationship between control expectancies and health behavior have been successful, in general, the research does suggest that internals are more likely than externals to behave in ways that protect their health. For example, internals, when compared to externals, are more likely to adhere to medical regimens (Lewis, Morisky, & Flynn, 1978); practice birth control (MacDonald, 1970; Lundy, 1972); seek information and knowledge about disease (Seeman & Evans, 1962; Lowery & DuCette, 1976; B. Wallston et al., 1976; K. Wallston et al., 1976; Toner & Manuck, 1979); use seat belts (Williams, 1972); reduce smoking (Coan, 1973; James, Woodruff, & Werner, 1976; Kaplan & Cowles, 1978; Mlott & Mlott, 1975; Steffy, Meichenbaum, & Best, 1970; Straits & Secherest, 1963; Williams, 1973); and, lose weight (Balch & Ross, 1975; B. Wallston et al., 1976; Saltzer, 1978).

Citing such findings, the 1975 National Heart and Lung Institute Working Conference on Health Behavior suggested that research is needed on educational interventions designed to move people toward internal orientations and thereby increase positive health behaviors (Weiss, 1975). Others suggest development of intervention programs tailored to individuals' locus of control expectancies. Thus, a program for health internals would place a strong emphasis on individual responsibility while an externally-oriented program might stress reliance on a social support system (Wallston & Wallston, 1978).

Locus of Control and Breast Self-Examination Behavior

While the relationship between locus of control beliefs specific to breast cancer and breast self-examination behavior has not been examined, other research concerning women and BSE practice has been done (Crossen et al., 1976; Gallup, 1973, 1977; Hobbs, 1971; Keller, 1978; Kelly, 1976; Lieberman, 1977; Margery et al., 1977; NCI, 1980; Stillman, 1977; Turnball, 1978). The usefulness of generalizations based on a comparison of such research is limited by serious between-study differences in methods and procedures. Nonetheless, an overview of factors associated with routine breast self-examination practice may prove helpful toward developing a theoretical model, to explain women's breast self-examination behavior.

Previous Research on Breast Self-Examination

For the most part, findings from previous research on breast self-examination are inconsistent. For instance, it is often assumed that fear and anxiety discourage women from practicing BSE. Although some studies support this belief (Gallup, 1973; Kelly, 1970; Stillman, 1977), others do not (Hobbs, 1971; Keller, 1978; Margery et al., 1977; NCI, 1980). Indeed, one study suggests that a certain degree of fear may motivate practice since women who report frequent self-examination also report the highest level of fear (Lieberman, 1977).

Although several studies have shown a relationship between frequency of practice and a perception of personal risk for breast cancer (Kelly, 1979; NCI, 1980), other studies have been unable to demonstrate this association (Stillman, 1977; Crossen et al., 1978). While one study reports that monthly practitioners are likely to believe in the efficacy of BSE (NCI, 1980), other studies show that most women, irrespective of BSE habits, believe it is an important early detection method (Stillman, 1977; Crossen et al., 1978).

Frequently reported to be associated with limited or non-BSE practice is a lack of knowledge and/or confidence (Gallup, 1973; Hobbs, 1971; Kelly, 1979; Keller, 1978; NCI, 1980). Associated with increased practice is personal BSE instruction by a doctor or nurse (Gallup, 1973; NIH, 1974). Variables such as: a belief in breast cancer as a serious problem, an optimistic attitude toward breast cancer detection and treatment methods; and, regular medical check-ups have also been shown to discriminate between monthly practitioners and all other women (NCI, 1980).

While the above factors may provide some information regarding determinants of BSE behavior, it is my belief that they are, in and of themselves, inadequate to account for the large number of women who know about breast self-examination yet fail to practice it. Rather, I will argue that women's BSE behavior may be a function of their locus of control beliefs, and findings from the aforementioned

research can be viewed as secondary examples of a higher order control orientation. Consider the following integration of previous BSE research and locus of control theory.

Previous Breast Self-Examination Research and Locus of Control Theory: A Synthesis

It is often assumed that women do not practice BSE because it reminds them of things they fear, i.e. cancer, breast loss, death (Gallup, 1973; Kelly, 1979; Stillman, 1977). Excuses for non-practice such as "I don't think about it," or "I forget," have been viewed as avoidance responses evoked by breast cancer's threatening stimulus value (Gallup, 1973). Fear of cancer as a death-dealing disease is the explanation usually offered about such behaviors. Less well understood, however, is the centrality of the breast in female psychological development. For most women, the organ plays an important role in self-esteem and femininity; and any threat to it is not lightly borne (Bard & Sutherland, 1955). Indeed, the very act of BSE may be an anxiety provoking acknowledgement of the vulnerability of the breast.

While fear of breast amputation is undoubtedly an important consideration, for most women it is not likely to be the primary deterrent to BSE practice. According to a recent survey (NCI, 1980), a small minority of women (10%) state they would not allow their breasts to be removed if cancer were found. Earlier research (Gallup, 1973) concludes that while women are concerned about how breast loss may affect their lives, it would be "a great mistake to

exaggerate the emotional response of women to breast removal." Fear of cancer, itself, is suggested as the more critical concern. In view of increasing information regarding breast saving alternatives to traditional and more radical methods of treating breast cancer, as well as opportunities for breast reconstruction, fear of cancer rather than fear of breast loss is likely to be a more salient factor in women's affective responses to the notion of BSE.

Nonetheless, omitted from the fear/anxiety interpretation of BSE non-practice is the notion of control. Studies have shown that perceptions of control can mediate feelings of fear and anxiety (Lazarus, 1966; Averill, 1973). In a stressful situation the more control an individual perceives the less fear and anxiety she or he is likely to experience (Lazarus, 1966). Applying this perspective to the BSE problem suggests that women's fear, anxiety, and subsequent defensive behavior, i.e. avoidance of BSE, may be caused not simply by breast cancer and its implicit threat, but rather by a perception that in the face of breast cancer there is nothing they can do to protect themselves from a mutilating and painful death. In other words, when it comes to breast cancer they have <u>no personal control</u> over their <u>health outcomes</u>. Their <u>locus of control</u> is <u>external</u>.

Indirect support for this interpretation may be found in earlier research suggesting that women who practice BSE routinely do acknowledge personal behavior as a way of

protecting their health. The National Cancer Institute report (NCI, 1980) suggests that monthly practitioners, when compared to all other women, appear to have more knowledge regarding detection and treatment of breast cancer, more optimism regarding its outcome and a belief in BSE as a valuable early detection tool (NCI, 1980). Furthermore, these perceptions appear to be held despite the threatening nature of breast cancer, since the regular practitioners not only report breast cancer as the most serious health problem women face but also express a belief that they are personally at risk for the disease (Kelly, 1979; NCI, 1980). According to Lieberman (1977) women who are most fearful about breast cancer tend to be those who are less knowledgeable about breast cancer and its treatment.

Interpreting these findings within a locus of control framework suggests that women who practice BSE regularly may know and believe that they can personally do something to protect themselves from breast cancer; they can detect it early and seek treatment that they believe is likely to be effective. Such women are likely to perceive a contingency relationship between their behavior and their health outcome (Internal Locus of Control). Armed with a means of exercising control these women can defend themselves against the threatening nature of breast cancer with approach behaviors (BSE practice) rather than avoidance (BSE non-practice).

Other findings may be brought to bear on the notion of control and BSE practice. Frequently reported to be

associated with BSE non-practice is a lack of knowledge and confidence. While a majority of women have heard about BSE, most are uninformed on the specifics of the procedure (NCI, 1980). They do not know the prescribed positions, how often to do it, or what exactly to look for. In view of these facts it is not surprising to find that only 24% express strong confidence in their ability to do a BSE (NCI, 1980).

An implicit assumption of the proposed locus of control model is that the routine practice of breast self-examination is likely to occur only if a woman truly believes that her skill in the conduct of BSE is sufficiently competent to assure the early detection necessary to reduce the hazard of advanced disease (i.e. a contingency relationship between her behavior and her health outcome). Unsure as women are about what they are supposed to do when performing a BSE, how likely are they to feel effective in discovering potential symptoms? In social learning terms women who are insecure about their BSE ability are likely to perceive a non-contingency relationship between their behavior and their health outcome. Regarding breast cancer, their locus of control would be external. If their performance of BSE is perceived as having little consequence for their health, despite their belief in the efficacy of breast self-examination for women in general, they personally are not likely to practice the procedure.

The relationship between women's BSE behavior and their locus of control beliefs specific to breast cancer has not,

as yet, been reported. However, social learning theory suggests that a woman's breast self-examination behavior can be predicted from her individual expectancies and values, which in turn are a function of her past learning experiences in similar situations. Unfortunately, it appears that an external orientation, rather than the more health promoting internal perspective, is more likely to be reinforced in women's daily life experiences.

Women and health care delivery. Most individuals have been socialized to assume the "good patient" role when interacting with health care providers; their behavior is compliant, cooperative, passive, and generally non-demanding (Lorber, 1975; Tagiacozzo & Mauksch, 1972; Taylor, 1976). While the "good patient" role is important for most individuals it appears to be especially salient for women.

In the normal course of events, women have extensive contact with physicians, occasioned by such natural circumstances as childbirth and child care. Consequently, they may tend to develop a somewhat chronic dependency on their physicians and delegate health care powers to them. Further contributing to this problem is women's limited knowledge and understanding of their normal reproductive functions. Since the unique conditions of menstruation and pregnancy can have a strong impact on women's lives, Kaiser and Kaiser (1974) suggest that "the physicians who preside over the mysteries of reproduction and parturition may be perceived by women as having extraordinary control over their lives."

Indeed, the notion that women seize control of their bodies is considered the central ideological thrust of the women's health movement (Driefus, 1978). If the socialization process has been powerful, the message a woman may hear is that she cannot be effective in her own health care; indeed it is not appropriate even to try. It is the health care professional (an external force) rather than herself, who has the skills needed to determine the outcome of health events. Therefore, what does a woman do when asked to examine her breasts every month? Her past learning experiences with the health care system give her little guidance. If she has been imbued with the good patient role she may say:

> "I know they told me I should do a BSE every month, but I can't possibly do it right. Only a doctor or nurse can. My doctor always takes care of these things."

Women who do not use the health system. While the preceding application of social learning theory may account for the external orientation of many women, it does not shed much light on those who do not use health services. Compared with users, these women tend to be: (a) older, (b) less well educated, (c) lower class, (d) somewhat less likely to be white, (e) likely not to have health insurance, (f) likely not to have convenient access to medical services (Day & Eichorn, 1972). However, limited experience with health care deliverers need not prevent such women from becoming external, for they have been exposed to the normative role

which women fill in the society at large. The traditional female role includes dependency, insecurity, emotionality, passivity, incompetence, and an inability to make decisions (Broverman et al., 1970; Bem, 1974). These stereotypic behaviors are not likely to be consistent with expectancies of personal control, either in health matters or in life in general. Indeed, it has been shown that many women do not perceive events as being the result of their own behavior (internal control) but rather the result of luck, chance or fate (external control) (Unger, 1978).

Even the woman with little prior experience in the health care system faces a problem when told that monthly BSE can save her life. To the extent that she has been socialized as a "normal female" in the culture, she will believe that external forces determine outcomes. What is her response to the BSE suggestion? "There is nothing I can do to prevent getting cancer so why bother trying" (i.e. external-chance locus of control).

Designing an Effective BSE Program

If existing social environments undermine a woman's belief that her behavior can influence her health, then efforts to motivate routine practice may need to create alternative environments that encourage different beliefs and behaviors. Efforts to motivate routine BSE practice have not previously considered social psychological factors. Taking such behavior as an isolated maatter, health education

has provided participants with information about costs versus benefits as well as technical instruction. While knowledge may be a necessary condition for healthful behavior it is not likely to be sufficient. The importance of social forces in shaping a woman's breast self-examination behavior may need to be acknowledged. To be effective, a BSE program may need not only to teach BSE skills but provide a social experience that fosters the belief that personal behavior can affect health. In essence, it may need to provide an internality training experience.

Uniquely suited to provide this kind of social environment are small group methods, especially those found in mutual aid or self-help groups (Gartner & Reissman, 1977). Indeed, the small group approach has already demonstrated its potential for creating change in women's breast self-examination behavior (Bond, 1958).

The small group approach. Rooted in the now classic work of Kurt Lewin (1978), the small-group approach emphasizes the importance of group process in altering social conduct. Self-help, a recent development in small group methods, appears to be especially relevant to an internality training experience.

Self-help groups focus on people who share a common problem or experience. Members work together to achieve a shared objective, usually the solution of a problem. While offering members a reason for their problem and different ways to deal with it, the group provides the benefits of a

support system as well as an alternative environment in which behaviors conducive to positive change and personal growth can be reinforced (Katz & Bender, 1976).

Exercising skills and knowledge to help others benefits the helper as well as those seeking assistance (Antze, 1976; Reissman, 1965). In effect, the sharing of experiences and offering of advice results in a kind of indoctrination process whereby helpers begin to perceive themselves as competent individuals capable of mastering their environment and controlling their lives (Antze, 1976).

Although professionals may be involved in self-help groups, in contrast to their traditional role as group leader and authority/expert, professionals in self-help groups act as catalysts, directing group members to become actively involved with each other (Bowles, 1978). As the women's movement has increased its pressure for change, self-help women's health groups have served as important expressions of changed attitudes and increasing assumptions of personal control.

A Small Group Approach to BSE

One way to measure the success of a new education program is to compare it with alternative programs (Rossi, Freeman, & Wright, 1979). Consistent with this requirement, this research will compare a newly developed small group breast self-examination program with two standard interventions presently available: Individual Instruction and Large Group Lecture. While Large Group and Individual Instruction

methods both represent traditional health education models, comparison with the latter are especially important since some studies have suggested that women who receive personal instruction are more likely to practice BSE than those who don't (Gallup, 1973; NCI, 1980).

The principle theoretical difference between the small group program and traditional educational methods is the former's recognition of the role control expectancies may play in mediating the relationship between relevant knowledge and breast self-examination behavior. In effect, the small group program proposes to motivate routine BSE practice by providing an internality experience. Through specially designed methods and procedures the program seeks to encourage participants to perceive themselves, and each other, as sufficiently competent to protect themselves from the hazard of advanced breast disease. The main evaluation criterion will be how well each motivates participating women to practice BSE <u>regularly</u> and <u>competently</u>.

HYPOTHESES

Reflecting the aims of the research, study hypotheses focus on predictions about differences between programs in two areas: BSE behavior and psychological mechanisms mediating changes in BSE behavior.

Specifically it is hypothesized that:

1. Women participating in a small group breast self-examination program will practice BSE more <u>frequently</u> than

standard program participants.

Women receiving individual instruction in breast self-examination will practice BSE more frequently than those who participate in a large group/lecture program.

2. Women participating in a small group breast self-examination program will perform BSE more competently than standard program participants.

Women receiving individual instruction in breast self-examination will perform BSE more competently than those who participate in a large group/lecture program.

3. Women participating in a small group breast self-examination program will be more confident in their procedural ability than standard program participants.

4. When compared to standard program participants, women attending a small group program will demonstrate the following changes in Breast Cancer Locus of Control beliefs:

a. A greater increase in internality.

b. A greater decrease in externality.

CHAPTER TWO

METHOD OF PROCEDURES

As mentioned earlier this study is a part of the Women's Health Project (WHP), a larger research effort conducted by the Center for Social Research of the City University of New York and sponsored by the American Cancer Society Cancer Control Division (Bard & Ross, Note 1). While an extensive report on the Project and its findings may be found elsewhere (Bard & Ross, Note 1), the scope of research reported here is limited to an impact assessment of the Small Group BSE Program and two standard instructional methods: Individual Instruction and Larger Group/Lecture.

Participants were women from within a large business organization randomly assigned to one of the three programs (n = 103). All interventions present factual information relevant to breast self-examination and breast cancer, consider psycho-social issues relevant to BSE practice, and, provide instruction in BSE skills. However, the mode and scope of presentation varied depending on the different models (small group versus standard health education).

Multiple measures of subjects' behavior were obtained one month before and three months following program participation and included two measures of BSE behavior (frequency and competency) and three measures of locus of control:

(a) Breast Cancer Locus of Control-Internal (BCLC-I),
(b) Breast Cancer Locus of Control-Chance (BCLC-C), and
(c) Breast Cancer Locus of Control-Powerful Other (BCLC-P).
Each of these measures is described below.

The Measures

Locus of Control Measures

These indicators are concerned with an individual's expectancies regarding the relationship between their behavior and their outcome. Since predictability may be enhanced by the use of content specific instruments (Ajzen & Fishbein, 1979; Rotter, 1954; Wallston, Wallston, & Maides, 1976; Wallston, Wallston, & DeVellis, 1978), the Breast Cancer Multidimensional Health Locus of Control Scales (BCMLC), developed as part of the Women's Health Project, was used (Ross, Bard, & Contrada, Note 2). (See Appendix A: The Breast Cancer Multidimensional Locus of Control Scales.)

Modeled after the Multidimensional Health Locus of Control (MHLC) Scales (Wallston et al., 1978), the BCMLC measure includes three subscales distinguishing between three separate locus of control dimensions: Breast Cancer Internal (BCMLC-I), Breast Cancer Powerful Others (BCMLC-P); and Breast Cancer Chance (BCMLC-C). Similar to the MHLC scales, it uses a six point Likert-type response format with response alternatives ranging from strongly disagree to strongly agree. Each of the three subscales vary in number of items: BCMLC-I (8 items), BCMLC-P (5 items), and BCMLC-C (11 items).

Except for one item on the Internal subscale (BCLC-I_1) all items are personally worded (i.e. the pronoun I is used rather than the universal, and more traditional, we).

Descriptive data on the BCMLC Scales are outlined in Table 1. Alpha coefficients ranging from .69 to .82 suggest

Table 1

Descriptive Data on Locus of Control Scales

Scale	n	No. of Items	Mean	SD	Alpha
BCMLC					
Internal	450	8	40.57	5.65	.69
Powerful Other	450	5	12.38	5.36	.71
Chance	450	11	19.03	7.43	.82

Note. The above data are from Bard and Ross (Note 1).

that the BCMLC scales are at least moderately reliable. Most important to this research is the BCMLC-I scale. Unfortunately of the three subscales it demonstrates the lowest reliability (alpha reliability = .69, n = 450). This is somewhat lower than the reliability reported for the 12 item version of the HLC Internal scale (alpha reliability = .86, n = 115) but closer to the six item version (alpha reliability = .77, n = 115) (Wallston et al., 1978). On the other hand, it compares favorably with Levinson's 8 item I-scale (alpha reliability = .50, n = 115), an instrument designed

to measure general internal locus of control beliefs using a multidimensional approach (Levinson, 1973).

The alpha reliabilities for the BCMLC-P and BCMLC-C scales are higher (.74 and .82 respectively) and more comparable to the figures reported for their theoretical counterparts in the MHLC and Levinson scales (alpha reliabilities: PHLC, 12 items = .83, 6 items = .72; Levinson's P scale, 8 items = .73; CHLC, 6 items = .75; 12 items = .84; Levinson's C scale, 8 items = .73) (Wallston et al., 1978).

Correlations between the three Locus of Control measures are presented in Table 2. For the most part, the BCMLC scale does appear to measure three separate dimensions although some shared variance does exist. Both externally oriented scales show a negative but moderate intercorrelation with the internal measure (BCMLC-I and BCMLC-P $\underline{r}$ = -.56, $\underline{n}$ = 450; BCMLC-I and BCMLC-C $\underline{r}$ = -.58). Thus, at least some of the variance between the BCMLC-I and the external subscales may be explained by the fact that the latter share approximately 20% common variance. With the exception of the intercorrelation between Levinson's P and C scale ($\underline{r}$ = +.60) the BCMLC scales appear to be somewhat less statistically independent than these other two locus of control instruments.

Evidence for the discriminant validity of the BCMLC scale was established by correlating the three subscales with the two other locus of control measures and a shortened version of the Marlowe-Crowne Social Desirability Scale (MCSD) (Strahan & Gerbasi, 1972). Table 2 shows that inter-

Table 2

Intercorrelations of BCMLC,[a] MHLC,[b] Levinson's I, P, C[c] Scales and Social Desirability

	BCMLC			MHLC			Levinson		
	I	P	C	I	P	C	I	P	C
BCMLC									
Internal	....								
Powerful Other	-.56	....							
Chance	-.58	.46	....						
MHLC (12 items)									
Internal	.34	.00	-.12	....					
Powerful Other	-.24	.47	.24	.02	....				
Chance	-.31	.37	.54	-.08	.35	....			
Levinson									
Internal	.25	-.03	-.06	.51	.07	.57	....		
Powerful Other	-.21	.35	.40	.00	.33	.43	-.04	....	
Chance	-.33	.39	.58	.09	.39	.63	-.05	.49	....
Social Desirability	-.10	.17	.00	.06	.27	.01	.00	-.03	.07

Note. The above data are from Bard and Ross (Note 1): n = 450, correlations of .12 are significant at the $p < .01$ level.

[a]BCMLC = Breast Cancer Multidimensional Locus of Control Scale.

[b]MHLC = Multidimensional Health Locus of Control Scale.

[c]I = Levinson's Internal Subscale.
P = Levinson's Powerful Other Subscale.
C = Levinson's Chance Subscale.

correlations between the BCMLC subscales and their theoretical counterparts in the other LOC measures are moderate, ranging from +.34 to +.58. While there is a small but significant correlation between Powerful Others (BCMLC) and the MCSD scale (r = +.17, p < .01), correlations between social desirability and Internality and Chance are non-significant.

Breast Self-Examination Behavior Measures

These indicators are concerned with the adequacy of a woman's BSE technique according to the criteria prescribed by the American Cancer Society (American Cancer Society, Note 3). Specifically two kinds of breast self-examination behavior were assessed: frequency and competency.

Frequency. How many times did the participant perform a breast self-examination during the 3-month follow-up period? Responses were obtained from questionnaire items administered in pre- and post-treatment (see Appendix B_{1-10}: Pre-Program Questionnaire, p. 135, and Appendix C_{1-11}: Post-Program Questionnaire, p. 145). The pre-treatment item (#101) asked "How often do you do a breast self-examination?" Six response alternatives were available: (1) Never; (2) Less than once a year; (3) Once or twice a year; (4) Three to five times a year; (5) Six to eight times a year; (6) Nine to eleven times a year. The post-treatment item requested subjects to indicate (from a list of months ordered consecutively for January through December) those months, in the past year, they had performed breast self-examination. Since

this was the three month follow-up, only the three months following program participation were considered. Responses to both items were treated as a continuous measure of subject's BSE practice taking values from 1 to 6 (pre-treatment) and 0 to 3 (post-treatment).

Competency. How competent is the participant's skill in BSE as judged by a nurse trained to assess the competency of a self-examination performance? Programs designed to motivate routine practice without considering the issue of competency are of limited value. Hence, an instrument to measure participant's procedural competency was developed (see Appendix D: The Breast Self-Examination Rating Scale, p. 156). Based on ACS criteria, this instrument includes three categories and their component parts: Mirror Inspection (8 items), Palpation (8 items) and Positions (4 items).

Mirror inspection refers to that part of the procedure where a woman visually inspects her breasts for changes in size, shape or color. Performed with arms at the side, over her head and pressing down on hips, the visual inspection is done in both a frontal and lateral position. These movements emphasize the breast structure making potential changes, such as skin retraction or nipple deviation, more visible than when the arms are at rest.

Palpation refers to the tactile component of the examination. Using the hand opposite to the breast that is being examined a woman feels for any changes from normal. With firm pressure, and moving her hand in small circular motions,

the entire breast tissue is palpated. In order to test for signs of discharge and bleeding both nipples are gently squeezed.

The position component refers to the positions a woman assumes when palpating her breast. According to ACS, palpation should be performed in two positions: Vertically (sitting or standing) and horizontally (lying down). When performed horizontally, a pillow is placed under the shoulder of the breast that is being examined and the hand opposite the examining hand is placed under the head. This position serves to flatten the breast, making lesions more easily discernible.

The competency rating scale uses a check-list format. As the subject performs a self-examination (either over her clothing or without clothing) the evaluator checks off those categories and components performed accurately. Since performing the self examination without clothing appeared to increase the anxiety of some women, all respondents in this study performed the breast examination over their clothing, removing outer garments only (i.e. coats, jackets or bulky sweaters).

Responses are treated as a continuous measure of subject's BSE competency with values ranging as follows: Mirror Inspection = 0 to 8; Palpation = 0 to 8; Position = 0 to 4. A measure of overall competency is derived by totaling the three category scores to yield a single Total Competency

rating with values ranging from 0 to 20. Thus, four measures of BSE competency may be obtained.

BSE Self-Confidence Measure

This measure is concerned with the participant's confidence in her ability to perform a competent BSE. As indicated earlier, the small group program seeks to provide an experience which enhances women's BSE competency subjectively as well as objectively. Thus, a subjective measure of BSE competency was obtained pre- and post-treatment from items #100 and #6 respectively which asked, "At the present time do you feel you have the skill to do a competent breast self-examination?" Three response alternatives were available: (1) No, (2) Yes, (3) I'm not sure. Responses were treated as a continuous measure of subject's confidence assuming values ranging from 0 to 2.

The Sample

As indicated earlier, this research is part of a larger research effort, presently ongoing, the Women's Health Project. An objective of the Project was to examine the potential for breast self-examination education in an occupational setting (Bard & Ross, Note 1). Towards this purpose a collaborative effort, between the Center for Social Research and a large New York City business organization with 2509 female employees, was initiated. It is from this population of women that the present study sample emerged. (Hereafter, this business organization will be referred to as Company X.)

While sampling procedures are described in detail elsewhere (Bard & Ross, Note 1), to enable a valid interpretation of this study, they are reported here as well.

Sampling Procedures

Initial subject recruitment. Three months prior to the initiation of the BSE programs, two attached letters were sent to female employees at Company X. One letter was from the Center for Social Research and the other was from the company's regional medical director. Although individual names were printed on each envelope, limited funds prohibited the printing of names on the letter salutation, hence, all letters began with a general greeting (i.e. To All Women Associates). (Note that in this particular organization employees are typically referred to as "associates.")

The Center for Social Research letter, signed by the director of the Center (Dr. Morton Bard) and the Project director (Toni Ross) served to: (a) introduce the BSE program, (b) establish the program as a collaborative effort between the Center for Social Research and Company X's medical department, (c) outline program details (i.e. time, place, staff), and (d) invite employee participation.

Attached to the Center for Social Research letter was a cover letter from the New York City regional medical director of Company X. Its principal purpose was to communicate the company's endorsement of the program and encourage employees to participate.

The procedure intended for letter distribution was to send letters directly to each female employee through the organization's internal mailing system. However, computer problems created a temporary loss of employee names and locations. Since the six week delay required for the correction of this problem would have created major scheduling problems, letters were distributed in tandem with paycheck envelopes.

Employees interested in participating in a BSE program were requested to complete the information indicated at the bottom of the Center for Social Research letter (i.e. name, job title, department, building, floor and telephone extension) and, using the enclosed self-addressed envelope, forward the information to their employee health center where the envelopes were, in turn, forwarded to the Project office at CUNY.

Employees were given four weeks to respond. Out of the sampling pool of 2509 women, 540 (22%) indicated an interest in program participation. In the present study, this "interested" group of women is referred to as Sample A (see Table 3: Summary of Sampling Outcome).

Pre-treatment data collection. Two months prior to the BSE program, women in Sample A were sent a letter, through the company's internal mailing system, scheduling them for a pre-treatment data collection session. While the main purpose of this session was to obtain pre-treatment measures of subjects' BSE behavior, it also provided subjects with the

Table 3

Summary of Sampling Outcome

	Selected Study Samples			
Study Phase	Sample A n = 540 (22%)[a]	Sample B n = 268 (11%) [50%][b]	Sample C n = 143 (6%) [53%]	Sample D n = 103 (4%) [72%]
Interested	x	x	x	x
Pre-treatment data collection		x	x	x
BSE Program			x	x
Post-treatment data collection				x

[a]These percentages reflect proportion of entire sampling pool (n = 2509).

[b]These percentages reflect proportion of the preceding sample.

opportunity to personally meet project staff and ask questions. This aspect of the pre-treatment session was considered especially important since prior to this study employees at Company X had no previous experience with the Center for Social Research or CUNY. Although employees' notions regarding the Project were unknown, it seemed reasonable to assume that most were at least curious as to the origins of this collaborative effort and would find the opportunity to ask questions and "see for themselves" reassuring. In the scheduling letter, these considerations were addressed accordingly.

> "During this preliminary session you will meet with a nurse who will provide you with additional information about your future appointment(s) and will answer any questions you may have. The nurse will also ask you to complete a baseline questionnaire. This is necessary to determine what you may or may not know about breast self-examination."

As part of the collaborative agreement with Company X, the pre-treatment session, as well as all other sessions pertaining to this study (i.e. program and follow-up), were scheduled during employee lunch hours (11:30 A.M. to 2:00 P.M.). Since appointments might conflict with employees' schedules, the letter encouraged subjects to telephone the project office regarding problems. One hundred fourteen subjects requested to be rescheduled and were accommodated. The pre-treatment session was scheduled to take place over a three week period. While it was recognized that a telephone call reminder represents the best follow-up method, funding and staffing limitations precluded its use. Thus, one week

prior to an individual's appointment a reminder letter was sent out. Nonetheless, attrition was high and only 268 subjects attended. This represents 11% of the total sample pool and 50% of Sample A. Subjects attending the pre-treatment phase are referred to as the "Pre-treatment Sample" or "Sample B."

The BSE programs. Following completion of pre-treatment data collection, subjects in Sample B were randomly assigned to one of the three BSE programs: Individual Instruction (n = 89); Large Group/Lecture (n = 89) and Small Groups (n = 90). (Programs are described on p. 40). Four weeks prior to program initiation, each subject was sent a letter indicating her program appointment, and, one week prior to program appointments, subjects were sent a reminder letter.

As with previous sessions, subjects were encouraged to call the Project Office if scheduled appointments presented any problem. And, as before, every effort was made to accommodate subjects' scheduling problems. Programs were scheduled to take place over a four-week period. As in previous phases, attrition during the first week was quite high. Out of 53 subjects scheduled for first week programs, only 21 (40%) attended. It was at this point that the scope of the internal mailing problem became apparent.

Mailing problems. Except for initial subject recruitment letters, all scheduling and reminder letters had been sent through the company's internal mailing system. Unfortunately some letters had apparently been deposited with

"outside" mail and forwarded to the local (U.S.) post office. Since addresses on the envelopes were adequate for internal mailing only (addresses included subject's name, department, floor and building number), they did not reach their destination. From the envelope's return address, some of these detoured letters found their way back to the Project office. However, judging from the postmarks (i.e. California, New Mexico, Seattle) these routes were often circuitous. While only 15 envelopes were received, it is not clear whether this number represented all detoured letters or only those that eventually reached us. In any case, the majority of returned letters were pre-treatment scheduling letters. Since this phase was completed, it was too late for these subjects to participate in a program.

Other indicators suggested mailing problems as well. Some subjects, noting that an associate had received a scheduling letter, called the Project office for information. In all but one instance, a letter had been sent. Other subjects, receiving reminder letters <u>after</u> the apointed program date, called to be rescheduled. In view of these problems, telephone call reminder procedures were initiated. While not possible earlier, the smaller sample size and the availability of personnel previously occupied with other functions, made telephone reminders possible.

On the day preceding their scheduled program date, each subject received a telephone call reminding her of her upcoming appointment which was rescheduled if requested.

This procedure resulted in an increase in program attendance suggesting that had telephone follow-up procedures been instituted earlier, attrition might have been considerably less. Ultimately, n = 143 subjects attended a BSE program, representing 6% of the sampling pool and 53% of Sample B. Subjects attending both the pre-treatment and program sessions are referred to as Sample C or the "Program Sample."

Post-treatment data collection. Three months following program participation, subjects in the Program Sample were sent letters scheduling them for a post-treatment data collection session. In view of previous attrition problems, telephone follow-up procedures were instituted at the beginning of this phase. Subjects were called the day before their appointment and if requested they were rescheduled to a more convenient day. Ultimately 103 subjects attended the follow-up session representing 4% of the total sample pool, 19% of subjects interested in a BSE program (Sample A), 38% of subjects attending the pre-treatment phase, and 71% of subjects attending programs. Of the n = 40 subjects not attending follow-up, n = 5 (13%) had terminated with the company. This information was ascertained from telephone follow-up procedures. This final sample, of subjects attending all phases of the study, is referred to as the "Study Sample" or "Sample D" and comparisons between BSE programs, the focus of this research, is based on this sample.

Characteristics of the Study Sample

The demographic characteristics of women participating in this study are outlined in Table 4. To determine whether this sample represents a random subset of the sampling population, Company X was requested to provide comparable data on their female employees during the relevant time period. While these data are forthcoming, the only information presently available is on ethnicity and age, thus limiting, in this report, comparisons between the Study Sample and the population from which it emerged.

Ethnicity. As can be seen from Table 4, the ethnic distribution of the study sample is similar to that of the sampling population. While a majority of subjects in both samples are white (Study Sample = 72%; Sampling Population = 68%) over one quarter of the subjects are of minority status (Study Sample: Black = 17%, Hispanics = 9%, Asians = 1%, Other = 1%; Sampling Population: Black = 20%, Hispanics = 9%, Asians = 2%, Other = 3%). In view of the fact that minority women tend to present with later stage breast cancer (American Cancer Society, 1982), their participation in early detection programs is especially important.

Religion. The majority of subjects in the Study Sample were Catholic (50%). While 23% report Protestant affiliation, 12% are Jewish and 11% report no religious affiliation.

Age. Women participating in the study tended to be slightly older ($\bar{x} = 38.5$) than female employees in general ($\bar{x} = 35.9$). As can be seen from Table 4, a greater

Table 4

Demographic Characteristics of the Study Sample and the Sampling Population

Demographic Category		The Study Sample (n = 103)	The Sampling Population (n = 2509)
ETHNICITY	Asian	1%	2%
	Black	17%	20%
	Hispanic	9%	9%
	White	72%	68%
	Other	1%	3%
RELIGION	Catholic	50%	
	Jewish	12%	
	Protestant	23%	
	Other	5%	
	None	11%	
AGE	18 to 29	24%	42%
	30 to 39	35%	25%
	40 to 49	20%	13%
	50 to 59	17%	15%
	60 to X	3%	5%
EDUCATION	Less than H.S. completed	3%	
	H.S. completed	25%	
	Some college	34%	
	College completed or more	37%	
	Other	1%	
HOUSEHOLD INCOME	Less than $10,000	5%	
	$10,000 to $14,999	17%	
	$15,000 to $19,999	21%	
	$20,000 to $24,999	20%	
	$25,000 to $35,000	20%	
	Over $35,000		
MARITAL STATUS	Never married	32%	
	Married	45%	
	Divorced	14%	
	Separated	7%	
	Widowed	3%	
CHILDREN	Yes	42%	
	No	58%	

Note. Percentages are based on the total number of women in the study sample responding to items in that category. Since numbers are rounded to the second place, percentages may total to slightly over 100%.

proportion of women between the ages of 30 to 49 participated in the study (55%) while younger employees (18 to 29) are less represented (24%). In contrast, the proportion of subjects between the ages of 50 to X (20%) appears to be representative of the Sampling Population. Since the risk of breast cancer increases with age (Leis, 1981), reaching subjects approaching the 40 to 55 age bracket is especially important.

Education. As would be expected in a business setting, most of the subjects are well educated. Less than 2% report having less than a high school education. While one-quarter report having completed high school, 71% claim to have some college education or more. Furthermore, approximately one-third of the sample, 37%, report having done at least some graduate work.

Family income. Of the women participating in this study only 5% report a family income less than $10,000. While 17% realize incomes between $10,000 to $14,999, 41% report incomes between $15,000 and $25,000. About 37% claim incomes in excess of $25,000. Clearly this sample is representative of working women in the higher socioeconomic levels.

Marital status. The sample is almost equally divided between married women (45%) and those either never married (32%) or otherwise without spouses (24%); (divorced, 14%, separated, 7%, or widowed, 3%).

Children. Less than half the women in this sample report having children (41%).

The Conduct of the Study

Pre-treatment Data Collection

Data collection took place at the employee health center during employee lunch hours in order to minimize disruption in the workday of employees. Subjects were greeted by a project staff person (usually the project director) who introduced the participant to a nurse evaluator. After escorting the subject into an examining room, the nurse provided the following explanation:

> "Let me tell you what today is about and then, if you have any questions I'll answer them for you. In order to plan programs for women here at Company X we need to find out what you already know about breast cancer and breast self-examination. We do this in two ways: One is with a questionnaire and the other is by asking each woman to demonstrate, over her clothing, what she thinks is involved in doing a breast self-examination. After we have that information we can, more appropriately, plan the upcoming programs which are scheduled to begin around the end of May."

After answering questions and obtaining signed consents, BSE competency ratings were obtained. Subsequently, evaluators escorted subjects to a conference room where they were introduced to the field co-ordinator (Kay Aller-Maida) and questionnaire data were obtained. Since these sessions were conducted during employee lunch hours, subjects were encouraged to eat their lunch while filling out the forms. Total time spent in data collection ranged from twenty to fifty minutes. While BSE ratings usually required 5 minutes

or less, questionnaire completion varied according to individual subjects.

After completing the questionnaire, subjects were thanked for their participation thus far, and informed that in the near future they would receive information regarding the BSE programs.

The BSE Programs

One month following the pre-treatment phase, the BSE programs were implemented and took place over a six week period. As with data collection, programs were held during employee lunch hours. While individual instruction took place in examining rooms at the health center, both small and large group programs were held in conference rooms.

To control for the effects of extraneous variables that might confound the effect of the BSE programs (i.e. media programs or reports on breast cancer) attempts were made to schedule equal numbers of persons per week for each treatment group. While this was possible for Individual Instruction and Small Groups, the Large Group treatment group included only two sessions, precluding simultaneity with the other two treatment groups. The best solution appeared to be to schedule one Large Group session during the middle of the program phase (week three) and the other at the end (week six).

Post-treatment Data Collection

Four months following the completion of the BSE programs, post-treatment data collection took place over a four week period. The same procedures used during the pre-treatment session were used during post-treatment. After receiving a BSE assessment, subjects filled out a questionnaire (see Appendix B: Post-program Questionnaire). Since the post-treatment questionnaire was shorter than the pre-treatment survey, total time for the post-treatment session was considerably less (approximately 15 to 20 minutes).

The BSE Programs

Separate descriptions of each of the three programs are provided below. Each description includes an overview of the program as well as its objectives and procedures. While there are some similarities between programs, the formats of the two standard and one small group program vary according to the requirements of the educational model. To enable a comparison of program methods, a table summarizing methodological components according to BSE programs is provided at the conclusion of this first section (see Table 5: A Comparison of BSE Program Methods, p. 51). A curriculum for each of the three programs is included in Appendix $E_{1, 2, 3}$ (see pp. 157-172).

Standard Large Group/Lecture Program

Overview and objectives. This program represents one of two standard approaches to BSE education. Its purpose is to

provide procedural instruction as well as motivate monthly practice (ACS, Note 3). Implicit in the large group/lecture model appears to be the assumption that knowledge leads to health promoting behavior. Hence, an objective of this approach is to impart knowledge. According to this approach, informing women of breast self-examination's early detection role is breast cancer risk reduction will not only convince participants that they should practice BSE regularly but, they will in fact do so.

Program procedures. Participation in the large group/lecture program is usually through membership in a naturally occurring women's group such as a club or religious organization. Hence, the number of women attending a program will vary depending on the size of the group. Programs are typically conducted by a physician or nurse. Functioning as a teacher/expert, these professionals are usually recruited from within the community or through a local American Cancer Society chapter.

While it is likely that large group programs differ in scope, method and quality, the American Cancer Society does provide guidelines for persons organizing and/or conducting a breast self-examination educational program (ACS, 1977). According to these guidelines, the speaker should begin the program with a brief introduction outlining program agenda after which a film on BSE may be shown. The speaker should follow the film with a lecture on: (a) Normal breast anatomy, (b) Facts about breast cancer (i.e. incidence,

etiology, age/risk ratio, diagnostic procedures, (c) Facts about BSE (i.e. best time to perform, adjunct to breast examinations by a physician), and, (d) Psychosocial issues (i.e. cancer as a social stigma, fear, and anxiety).

After the lecture, ACS suggests that an opportunity for over the clothing BSE demonstration and practice be provided. While questions arising during the course of demonstration should be addressed, ACS advises the speaker to allow time, in the latter part of the presentation, specifically for a question-and-answer discussion period. Use of the Betsi model (a model of a woman's upper torso that is used for BSE demonstration and practice), BSE pamphlets, and a personal commitment card (a written pledge by a participant to take a specific health action) are deemed optional. In total, ACS recommends allowing 45 to 60 minutes for a program.

To insure the presentation of a "typical" program, the Public Education Division of the American Cancer Society's New York City Chapter provided the study's large group programs. While not informed of its investigative nature, ACS was told that three types of BSE presentations would be provided for employees at Company X (the target population); and while individual and small group programs were offered by another agency (The Center for Social Research), their services were required for the large group presentation.

In general, speakers for both programs (a registered nurse and a female physician) did follow the aforementioned

ACS guidelines. After introducing herself, each speaker talked briefly, about the importance of early detection in cancer risk reduction and the role of BSE. The introduction was followed by an instructional film (the same film was used in the small group programs). After the film, both speakers provided a question and answer period. And, while neither speaker employed over the clothing BSE tryout, the nurse offered participants the opportunity to briefly practice on the Betsi model and then distributed BSE pamphlets. Both sessions ran for 50 to 60 minutes. (See Appendix E_1, p. 157, for Large Group/Lecture Program Curriculum.)

Standard Individual Instruction Program

Overview and objectives. This program represents the kind of BSE education women are likely to receive in a physician's office or health clinic. Like the large group program, its purpose is to provide instruction and motivate routine breast self-examination practice. As indicated earlier, including the personal instruction approach in research designed to compare standard BSE programs with a new educational method is especially important since several studies have reported that women receiving personal instruction (typically by a physician) are more likely to practice BSE than those who are not (Gallup, 1973; NCI, 1980).

Program procedures. It is likely that health professionals vary considerably in the ways they teach women breast self-examination. For example, some efforts may be

perfunctory (i.e. during the performance of a breast examination the physician advises the patient to do the "same thing" at home) or even cursory (i.e. the physician hands a patient printed literature on BSE and suggests she do self-examination at home). On the other hand, professionals may be quite thorough in their instructional efforts (i.e. after performing a breast examination the physician observes the patient's performance of the procedure providing encouragement, giving further instruction and answering questions as indicated). The individual instruction program designed for the research represents the latter kind of effort.

For fifteen to twenty minutes, each participant met privately with a nurse trained in individual BSE instructional methods (see p. 53, Training of BSE Instructors). The nurse began the session by explaining the importance of early detection in breast cancer, the crucial role of routine BSE, and the best time to perform the self-examination. After demonstrating the procedure on herself (over her clothing) the nurse provided an opportunity for the participant to practice the technique (return demonstration), offering further instruction and answering questions as indicated. After the participant demonstrated a competent BSE performance, the nurse provided another opportunity for questions and answers before concluding the session.

For some women, being undressed may create anxiety sufficient to interfere with learning. Hence, procedures

designed for this program offered subjects the opportunity to choose whether or not they wished to remain dressed during their BSE return demonstration. Before leaving, participants received a BSE pamphlet. (See Appendix E_2, p. 160, for Individual Instruction Program Curriculum.)

The Small Group Program

Overview and objectives. Like standard educational models, the purpose of the small group program is to teach women breast self-examination skills and motivate monthly practice. Although knowledge is viewed as a necessary condition for the accomplishment of these goals, it is not considered sufficient. In the small group model, certain psychological mechanisms potentially mediating the knowledge-behavior relationship are taken into account as well. These mediators are made explicit and integrated into program design.

Fundamental to the small group approach is the assumption that breast self-examination is not likely to occur unless women believe that their skill, in the conduct of BSE, is sufficiently competent to assure the early detection necessary to reduce the hazard of advanced disease. In view of this position, the small group program is not limited to transmitting information. In addition, it seeks to provide an experience in which participants' performance of breast self-examination will be perceived as competent on both an objective and subjective level. It is assumed that such

perceptions provide women with a sense of some personal control over breast cancer, permitting approach behavior (BSE practice) rather than avoidance (BSE non-practice). Indeed, enhancing beliefs of personal control, vis-a-vis breast cancer, is the pivotal objective of this program and provides the theoretical basis for method design.

In an atmosphere of mutual support, BSE skills are acquired through a series of learning strategies designed to enhance procedural mastery. At the same time, focused group discussions provide participants with opportunities to understand and potentially overcome social, psychological and cultural barriers contributing to feelings of powerlessness about breast cancer which are thought to inhibit regular BSE practice. Ultimately, the program aims to have participants perceive themselves, and each other, as responsible agents in the maintenance of their personal health.

Essential theoretical differences between the small group approach and standard BSE programs are then the former's: (a) recognition of the role control expectancies play in mediating the knowledge-behavior relationship, and (b) consideration of social processes in bringing about a change in behavior. Acknowledging the effect the social environment may have on undermining women's beliefs that their personal behavior can influence their health, the small group program attempts to create an alternative environment in which beliefs and actions, conducive to

healthful behavior, are encouraged. Thus, it not only provides an educational experience but a socialization one as well.

Program procedures.

1. Pretesting and Piloting. Preliminary activities in the development of the small group program centered on the discussion component, a central feature of the small group method. Towards the development of this component, a sample of women (n = 35) in different walks of life, participated in informal tape-recorded interviews and small group discussions conducted by the author. The purpose of these activities was to determine how women respond to questions about issues posed as theoretically relevant to the practice of breast self-examination. Hence, respondents were asked questions about their BSE experiences (i.e. frequency of practice, previous learning activities, confidence in procedural ability), and experiences unique to their gender socialization (i.e. touching their bodies in early childhood, breast development, menarche, pregnancy, childbirth, and menopause).

Undoubtedly generalizations or conclusions are limited by small sample size and data collection methods (i.e. clinical impressions rather than systematic data analysis). Nonetheless, a picture did emerge suggesting that women's attitude and behavior toward BSE, albeit women in this sample, could be best characterized as ambivalent.

For example:

. While respondents thought they should learn how

to do BSE, little effort had been made to actively seek instruction.

- While respondents verbalized that BSE was important to do, non-practice was often attributed to "I forgot" or "I don't have time."
- While respondents generally reported feeling comfortable with their bodies, they also reported remembering early sex socialization experiences as negative.
- Other than their physician, most respondents had never discussed BSE and/or related issues with another person.

Pretesting activities suggested the need for methods that enabled participants to confront their ambivalence in ways that facilitate understanding and learning. Particularly important in developing these methods was the need to structure program experiences in such a way that the topic remained sufficiently compelling to encourage approach behavior (i.e. program attendance and active participation) but not so anxiety provoking that it encouraged avoidance (i.e. attrition).

Using small group and social learning principles as a theoretical framework, methods for the small group program were developed and piloted on female employees (n = 35) at a local university. In these groups the investigator (who had experience as a registered nurse) functioned as the nurse-facilitator. Piloting activities were primarily

concerned with the testing of experimental learning strategies and facilitator techniques. To enable an evaluation of program methods, all piloted programs were tape-recorded and assessed by the investigator in consultation with her advisor and other experts on small group behavior. Based on these activities the following small group method emerged and represents the approach implemented in this study.

2. Final Procedures. The small group method does offer some of the features found in standard BSE programs such as over the clothing demonstration and practice, a breast model, and a BSE film. On the other hand, differences in methods, reflecting differences in theoretical assumptions, are also found.

As developed, each individual small group accommodates six to eight women meeting for three, one-hour sessions. The first two meetings occur on Thursday and Friday. Following the weekend, participants return for a third session on Monday. The weekend hiatus is designed to permit time to assimilate previous learning experiences as well as reinforce learning by engaging in at-home exercises.

While standard programs are both formal and structured, informal groups are basic to the small group model. The health educator, acting as a facilitator rather than the traditional expert/teacher refrains from becoming the principal source of information and instead directs group members to teach and learn from each other. This is done primarily

through focused group discussions and BSE learning strategies.

Focused discussion enables participants to become actively involved with each other and at the same time provides a vehicle for sensitizing group members to the significance of their behavior for their health. BSE learning strategies, introduced systematically throughout the program, provide participants with opportunities to master their newly learned skills. Structured in this way, the group's psychological readiness for experiences designed to build upon preceding events can be considered. Learning strategies include role playing activities, in which participants act as BSE instructors to their group members, and at-home exercises whereby participants initiate discussions on breast cancer and BSE with both men and women as well as teach uninitiated women. (See Appendix E_3, p. 163, for the Small Group Program Curriculum and Appendix F, p. 173, for a typescript sample of a Small Group Program session.)

Recruitment and Training of Personnel

Staffing

Professional registered nurses, recruited through graduate nursing programs in the New York metropolitan area, served as BSE instructors and evaluators. While their background and professional experience varied, all were similar in that they demonstrated: (a) an interest in patient education; (b) excellent interpersonal skills; (c) a high

Table 5

A Comparison of BSE Program Methods

Instructional Methods	BSE Programs		
	Small Groups	Individual Instruction	Large Group Lecture
Breast Model	x		Suggested[a]
BSE Film	x		x
BSE Pamphlets		x	Suggested[a]
Experiential Learning Strategies	x		
Focused Group Discussion	x		
Didactic Presentation		x	x
Over-the-Clothing Demonstration and Practice	x	x	Suggested
Questions and Answers		x	x
Nurse as Facilitator	x		
Nurse as Teacher/Expert		x	x

Note. x = Included in program; Suggested = Procedures suggested for a program but not included in this study.

[a]These procedures were informally included in one of the two large group programs.

degree of professional commitment, and (d) emotional maturity. Ultimately nine nurses were employed. Remuneration for professional services was rendered at the rate of $10.00/hour and included training time as well as hours in the field.

Procedures proposed to control for the effect of nurses' individual differences on BSE competency ratings and BSE programs included the following:

1. Random assignment of nurses to either the instructor or evaluator role.

2. Employment of sufficient numbers of nurses (six instructors, four pre-treatment evaluators and four post-treatment evaluators) such that the effect of any one nurse was attenuated.

However, the reality of field research is such that experimental methods must often be compromised in the interest of pursuing research in "real life" settings. In view of the fact that less nurses than anticipated were hired but all were equally qualified for either role, nurses were assigned to the evaluator or instruction category on the basis of the fit between their schedules and the constraints of the study. While an adequate number of nurses were assigned to data collection (four to pre-treatment and four to post-treatment) only four nurses were available for the educator role (two for individual instruction and two for small groups). As mentioned earlier, the large group/lecture program was provided by ACS.

Training

All nurses participated in a training program conducted by the director of the Center for Social Research (M.B.) and the project director (T.R.). At its onset, the training program recognized that the nurses were integral to the success of the research. Thus, in addition to providing the staff with instruction in those skills necessary for their role in the field, the training program was designed to foster a professional commitment.

Although extrinsic rewards were undoubtedly a factor in nurse participation, the pay scale was not commensurate with their experience and education ($10.00/hour). Thus it was unlikely that the primary factor motivating their participation was financial. Rather, an opportunity to learn about the realities of doing research in the "real world" seemed to be the more important consideration. Many of the nurses were interested in pursuing research activities conjointly with their present professional interests. Others were in occupational nursing graduate programs and were interested in relevant experiences. Still others were interested in identifying fields of work beyond traditional nursing settings and this experience was viewed as an opportunity to identify such possibilities.

Recognizing these interests, the program provided participants with opportunities to identify the kinds of professional benefits they could derive from their experiences in the study and in fact addressed these interests at

different points throughout the training. Table 6 below provides an outline of the training program. (See Appendix G, p. 183, for further discussion of the nurse training program.)

Table 6

Curriculum for Nurse Training Program

Unit	Topic	Time	Participants
Unit I	Introduction and Overview	90 min.	Everyone
Unit II	The Breast in Health and Disease	45 min.	Everyone
Unit III	Principles of BSE Procedure	45 min.	Everyone
Unit IV	Methods for BSE Evaluation		
	Overview	2 hrs.	Evaluators
	Practicum	2 hrs.	
Unit V	Methods for Individual Instruction		
	Overview	2 hrs.	Individual
	Practicum	2 hrs.	Instructors
Unit VI	Method for Small Groups		
	Overview	2 hrs.	Facilitators
	Practicum	9 hrs.	

CHAPTER THREE

ANALYTIC METHODS AND RESULTS

Dependent Measures and Data Analytic Techniques

The primary purpose of this research is to compare the newly developed small group program with standard methods of breast self-examination instruction. Also considered is the proposed locus of control model to explain women's breast self-examination behavior. While not the study's major focus, analyses designed to provide preliminary information regarding the model's explanatory power are reported.

The dependent variables are:

1. BSE Frequency. The number of BSE's performed post-treatment.

2. BSE Competency. Pre-to-post change in BSE competency scores.

3. BSE Self-Confidence. Post-treatment BSE self-confidence scores.

4. Breast Cancer Locus of Control Beliefs. Pre-to-post change scores for the Breast Cancer Multidimensional Locus of Control, Internal, Powerful Other and Chance scales.

The analysis of the data reflects the aims of the research; therefore, both confirmatory and exploratory techniques are included. Since, despite the use of randomized experimental design, preliminary analyses revealed initial

between-group differences on several of the dependent variables, program impact on participants' behavior was analyzed by means of analysis of covariance (ANCOVA). Left uncontrolled, such variability may obscure reliable differences in responsiveness to experimental treatments. In addition to providing a correction for initial between-group differences, the ANCOVA increases the statistical power of the F test by reducing within cell variability.

Hypotheses regarding differences between programs were made a priori. Consequently, pairwise comparisons between treatment groups were tested by means of planned contrasts performed on covariance-adjusted cell means. While these analyses were primarily confirmatory in nature, exploratory techniques were used as well. For example, treatment effects on each of the dependent variables were further examined by means of internal analyses performed separately within levels of pre-treatment BSE frequency. Dependent variables were also treated to within-group analyses to test for significant differences from zero. Thus, subjects' responsiveness to experimental treatment was examined within as well as between program groups.

While not the major focus of this investigation, this research does propose a theoretical model to explain women's BSE behavior. In addition to the above ANCOVA's and, preliminary to more complex analyses (i.e. multiple regression/correlation), a series of simple correlations were performed on pre-treatment levels of each of the dependent variables

for subjects in the Final Study Sample and selected sub-samples.

Results are presented in the following order: To provide baseline information on the sample's BSE behavior, findings on pre-treatment BSE frequency and competency are reported first. Subsequently presented are results concerning program impact on breast self-examination behavior (frequency and competency), and variables proposed as predictors of BSE practice. Finally, findings from correlational analyses, concerning the relationship between dependent variables and potential predictors of BSE practice, are reported.

Pre-treatment BSE Behavior of the Study Sample

Frequency

Measures of BSE frequency were obtained from Item #101 on the pre-treatment questionnaire. In response to the statement "How often do you do a breast self-examination?," six response alternatives were available: (1) Never; (2) Less than once a year; (3) Once or twice a year; (4) Three to five times a year; (5) Six to eight times a year; (6) Nine to eleven times a year. Responses to Item #101 were treated as a continuous measure of subject's pre-treatment BSE practice taking values ranging from 1 to 6.

Descriptive data on BSE frequency for selected study sub-samples are reported in Table 7. As can be seen, the

Table 7

Descriptive Data for BSE Frequency at Intake for Selected Study Subsamples

Study Sample	n	Mean	SD
Intake	268	3.45	1.86
No Program	123	3.45	1.85
Program	145	3.59	1.84
Final Study Sample	103	3.76	1.84
No Follow-up	41	3.17	1.80
Small Groups	41	3.44	1.92
Individual Instruction	34	3.82	1.82
Large Groups	28	4.14	1.72

Note. 1 = Never
2 = Less than once per year
3 = Once or twice a year
4 = Three to five times a year
5 = Six to eight times a year
6 = Nine to eleven times per year

mean score for the Final Study Sample is 3.76 (SD = 1.84) indicating that even before treatment on the average subjects in this study report performing one to two BSE's per year.

Subjects' annual number of BSE's were further categorized according to Practitioner Category such that Infrequent Practitioner = 0 to 2; Moderate Practitioner = 3 to 5; and Frequent Practitioner = 6 to 11. Table 8 presents the BSE frequency distribution according to these categories. According to Table 8, prior to any intervention, the majority of subjects were either Infrequent (40%, n = 40) or Frequent (38%, n = 38) Practitioners, while approximately one-fifth were Moderate Practitioners (22%, n = 22).

Competency

Measures of BSE competency were obtained from subject's scores on the BSE Competency Rating scale taken at Intake. Discussed earlier, this scale reflects standard ACS breast self-examination procedure and is divided into three categories and their component parts: Mirror Inspection (8 items), Palpation (8 items), and Positions (4 items). Responses were treated as a continuous measure of subject's BSE competency with values ranging as follows: Mirror Inspection = 0 to 8; Palpation = 0 to 8; Positions = 0 to 4. A measure of overall competency was derived by totaling the three category scores to yield a single total competency rating with values ranging from 0 to 20. Thus, four measures of BSE competency were obtained.

Table 8

Pre-Treatment BSE Frequency
for Final Study Sample

Practitioner Category	Number of BSE's per Year	Number of Subjects n = 103 (101)[a]	% of Sample
Infrequent	None[b]	30 (29)	29% (29%)
	1 to 2	11 (11)	11% (11%)
Moderate	3 to 5	23 (22)	22% (22%)
Frequent	6 to 8	12 (12)	12% (12%)
	9 to 11	27 (27)	26% (26%)

[a]Values in parentheses are based on subjects who attended follow-up and are not missing post-treatment BSE data.

[b]Combines two response categories "none" and "less than one."

While descriptive data for selected study subsamples are reported in Table 9, we are concerned here only with the Final Study Sample. As can be seen, in general subjects reveal a low overall level of BSE competency (Total Score $\bar{X}$ = 5.27, SD = 2.76). Of the three competency components, mirror performance was the most inadequate ($\bar{X}$ = .69, SD = 1.48). Although palpation ($\bar{X}$ = 3.29, SD = 1.80) and position ($\bar{X}$ = 1.29, SD = .67) scores are higher, on the average they do not reach the scale midpoint. Thus, while self-report measures of BSE frequency suggest that most subjects were close to moderate levels of practice, objective measures of procedural competency indicate that their technique performance was for the most part, inadequate.

Impact of BSE Programs on Breast Self-Examination Behavior

Hypothesis One: Frequency of Breast Self-Examination Practice

> *Women participating in a Small Group Breast Self-Examination Program will practice BSE more frequently than Standard program participants.*
>
> *Women receiving Individual Instruction in breast self-examination will practice BSE more frequently than those who participate in a Large Group/Lecture program.*

Similar to pre-treatment, responses for post-treatment BSE frequency were treated as a continuous measure of subjects' BSE practice. Since this was the three month follow-up, responses assumed values ranging from 0 to 3.

To test Hypothesis One, subjects' scores for pre- and post-treatment frequency were treated to analysis of

Table 9

Descriptive Data for BSE Competency at Intake on Selected Study Subsamples

Study Subsample	n	Mirror		Palpation		Position		Total Score	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Intake	268	.54	1.27	3.29	1.72	1.23	.71	5.06	2.54
No Program	123	.52	1.24	3.40	1.72	1.20	.80	5.13	2.51
Program	145	.55	1.31	3.20	1.72	1.26	.63	5.00	2.59
Final Study Sample	103	.69	1.48	3.29	1.80	1.29	.67	5.27	2.76
Small Groups	41	.53	1.16	3.41	1.92	1.26	.67	5.22	2.67
Individual Instruction	34	.91	1.73	2.88	1.79	1.15	.66	4.94	3.13
Large Groups	28	.64	1.57	3.60	1.59	1.50	.64	5.75	2.43

covariance. For this comparison, the dependent variable was the number of post-treatment BSE's. Since preliminary analyses revealed a significant positive relationship between pre-treatment BSE frequency and the dependent variable (β = +.15, F [1, 96] = 11.8, p < .002), pre-treatment BSE frequency was included as a covariate. Table 10 provides a summary of the ANCOVA.

The first analyses performed were the within-group comparisons. As can be seen from Table 10, the covariance adjusted mean score, for each treatment group was significantly greater than zero (Small Group [F (1,96) = 361.39, p < .001]; Individual Instruction [F (1, 96) = 247.75, p < .001]; Large Group [F (1, 96) = 235.77, p < .001]). In view of the fact that the majority of women, at Intake, reported close to moderate (3 to 5 times per year) levels of practice, this finding is not surprising.

The overall main effect for treatment group differences was non-significant (F [2, 97] = 1.26, p = .29). Moreover, planned pairwise contrasts revealed no significant differences between groups (p > .05). Note that the ordering of cell means for comparisons between Standard Programs is contrary to predictions, with Large Group/Lecture showing a higher score ($\bar{X}$ = 2.39) than Individual Instruction ($\bar{X}$ = 2.17). However it is noteworthy that for comparisons between Small Groups and Standard Programs, the ordering of cell means is precisely as predicted with Small Groups showing the higher score ($\bar{X}$ = 2.46).

Table 10

Summary of Means and ANCOVA for BSE Frequency

Description of Analysis: Dependent variable is number of post-treatment BSE's. Independent variable is Treatment Group. Covariate is Pre-treatment # BSE's.

SUMMARY OF ANALYSIS

Effect	df	F	Probability	Regression Coefficient
# BSE's Pre-treatment	1/96	11.18	$p < .002$	+.1491
Treatment Groups	2/96	1.26	$p = .29$	--

Pairwise Contrasts

	df	F	Probability
Small Group vs. Individual Instruction	1/96	2.38	$p = .126$
Small Group vs. Large Group	1/96	.13	$p = .724$
Individual Instruction vs. Large Group	1/96	1.12	$p = .292$

(continued)

Table 10, continued

Significance of Covariance - Adjusted Cell Means							
Group	n	Pre-treatment # BSE's	Post-treatment # BSE's	Adjusted Post-treatment # BSE's	df	F	Prob.
Small Group	(40)[a]	3.44	2.41	2.46	1/96	361.39	$p < .001$
Individual Instruction	(34)	3.82	2.18	2.17	1/96	247.75	$p < .001$
Large Groups	(27)[a]	4.15	2.44	2.39	1/96	235.77	$p < .001$

[a]One subject has missing data for post-treatment and was therefore deleted.

Post-treatment BSE frequency according to pre-treatment levels. That differences between treatment groups were not significant is not surprising. After all, measures were obtained for only a three month period. Since the majority (60%) of subjects in this sample were either Frequent or Moderate Practitioners prior to program participation, it is reasonable to expect that these same subjects would continue to perform at least two BSE's post-treatment. Of particular importance, then, is whether Infrequent pre-treatment practitioners were motivated to develop a monthly habit, albeit over a short term period.

Table 11 a-c provides a crosstabulation of post-treatment BSE frequency according to pre-treatment levels for each of the three treatment groups. According to these results, most pre-treatment Frequent Practitioners did continue to perform three post-treatment BSE's. However, the Small Group program appears to have been especially effective in motivating Infrequent Practitioners to develop a monthly habit. Of the Infrequent Practitioners assigned to the Small Group treatment, 47% (n = 8) performed BSE's in all three months during the follow-up period. Comparable figures for the other treatments were 31% (n = 4) for Individual Instruction and 30% (n = 3) for Large Group/Lecture.

Given the small sample size and consequent low cell frequencies, statistical analysis of differences in the percentages given above are inappropriate, and these data should be interpreted cautiously. Nevertheless, the findings do

Table 11a

Crosstabulation of Pre-Treatment and Post-Treatment BSE Frequency for Small Groups (n = 40)

Annual Number of Pre-treatment BSE's	Number of BSE's Post-Treatment				Total
	0	1	2	3	
Infrequent[a]	0%[b]	18%	35%	47%	42%
	(0)[c]	(3)	(6)	(8)	17%
Moderate	11%	0%	33%	56%	23%
	(1)	(0)	(3)	(5)	9%
Frequent	7%	7%	21%	64%	35%
	(1)	(1)	(3)	(9)	(14)
Total	5%	10%	30%	55%	
	(2)	(4)	(12)	(22)	

Note. Infrequent = None, less than once a year, and, one to two times a year.
Moderate = Three to five times a year.
Frequent - Six to eight times a year.

[a]One subject in the Infrequent category has missing data reducing the sample.

[b]Percentages in table are row percentages. Percentages in the right margin and beneath table (Total) reflect proportion of the entire Sample.

[c]Frequency is given in parentheses.

Table 11b

Crosstabulation of Pre-Treatment and Post-Treatment BSE Frequency for Individual Instruction (n = 34)

	Number of BSE's Post-Treatment				
Pre-treatment BSE's	0	1	2	3	Total
Infrequent	8%[a]	31%	31%	31%	38%
	(1)[b]	(4)	(4)	(4)	(13)
Moderate	0%	11%	33%	56%	27%
	(0)	(1)	(3)	(5)	(9)
Frequent	8%	8%	25%	58%	35%
	(1)	(1)	(3)	(7)	(12)
Total	6%	18%	29%	47%	
	(2)	(6)	(10)	(16)	

Note. Infrequent = None, less than once a year, and, one to two times a year.
Moderate = Three to five times a year.
Frequent = Six to eight times a year.

[a]Percentages in table are row percentages. Percentages in the right margin and beneath table (Total) reflect proportion of entire sample.

[b]Frequency is given in parentheses.

Table 11c

Crosstabulation of Pre-Treatment and Post-Treatment BSE Frequency for Large Group/Lecture (n = 27)

Pre-treatment BSE Practice	Number of BSE's Post-Treatment				Total
	0	1	2	3	
Infrequent	10%[a]	10%	50%	30%	37%
	(1)[b]	(1)	(5)	(3)	(10)
Moderate	0%	25%	25%	50%	15%
	(0)	(1)	(1)	(2)	(4)
Frequent[c]	0%	0%	11%	92%	44%
	(0)	(0)	(1)	(11)	(12)
Total	4%	7%	26%	59%	
	(1)	(2)	(7)	(16)	

Note. Infrequent = None, less than once a year, and, one to two times a year.
Moderate = Three to five times a year.
Frequent = Six to eight times a year.

[a]Percentages in table are row percentages. Percentages in the right margin and beneath table (Total) reflect proportion of entire sample.

[b]Frequency is given in parentheses.

[c]One subject in the Frequent category has missing data reducing the sample size.

provide suggestive support for the Small Group Program's unique potential to motivate women previously resistant to habitual BSE practice.

Hypothesis Two: Competency in Breast Self-Examination Performance

> *Women participating in a Small Group Breast Self-Examination Program will perform BSE more competently than Standard program participants.*
>
> *Women receiving Individual Instruction in breast self-examination will perform BSE more competently than those who participate in a Large Group/Lecture program.*

To test Hypothesis Two, subjects' BSE competency scores were treated to analysis of covariance. Post-treatment scores were obtained from competency ratings taken at follow-up. Similar to pre-treatment responses, post-treatment ratings were treated as a continuous measure of subjects' competency and assumed the same values assigned pre-treatment (i.e. Mirror Inspection = 0 to 8; Palpation = 0 to 8; Position = 0 to 4; and Total Competency = 0 to 20). In this, and all other analyses using pre-and-post scores from the same instrument, the covariance adjusted change score is treated as the dependent variable.

Separate analyses were performed for each measure, and results are presented individually. However a summary of results is provided at the end of the competency section and a single table, presenting cell means, for all four measures, is provided in the beginning (see Table 12).

Table 12

BSE Competency: Cell Means

Treatment Group	n	Mirror	Palpation	Positions	Total
BSE Competency Prior to Treatment					
Small Groups	41	.54	3.41	1.27	5.22
Individual Instruction	34	.91	2.88	1.15	4.94
Large Groups	28[a]	.67	3.61	1.50	5.75
BSE Competency Change Scores (Unadjusted)					
Small Groups	41	+4.78	+3.51	1.88	10.17
Individual Instruction	34	+1.50	+2.68	1.65	5.8
Large Groups	28[a]	+3.00	+2.00	1.54	+6.61
BSE Competency Covariance-Adjusted Change Scores					
Small Groups	41	+4.65	+3.67	+1.82	+10.04
Individual Instruction	34	+1.72	+2.34	+1.48	+5.54
Large Groups	28[a]	+2.92	+2.18	+1.82	+7.14

[a]n for this group is 27 for Mirror ANCOVA, because one subject had missing values on Pre-treatment Frequency of BSE Practice, a covariate in said ANCOVA.

Total BSE Competency. Table 13 provides a summary of the analysis of covariance for Total BSE Competency scores. In this analysis Total Competency is treated as the dependent variable with Treatment Groups the independent variable. Preliminary regression analyses revealed a significant negative relationship between the dependent variable and pre-treatment scores for Total BSE Competency (β = -.5659, F [1, 98] = 20.51, p < .001), indicating a well documented phenomenon whereby subjects initially low on a variable, in this case Total BSE Competency, have larger gain scores than those initially high (Cohen & Cohen, 1975). Interestingly, a similar relationship emerged for BCLC-Powerful Other suggesting that the less subjects were oriented toward Powerful Others (BCMLC-P) pre-treatment, the more their total competency score improved post-treatment (β = -.7361, F [1, 98] = 5.51, p = .03). Consequently, both variables were included as covariates.

As can be seen, covariance-adjusted change scores, in all three treatment groups, were positive and significantly greater than 0 (Small Groups: F [1, 98] = 364.27, p < .001; Individual Instruction: F [1, 98] = 91.73, p < .001; Large Groups: F [1, 98] = 121.02, p < .001), thus documenting improvement in Total Competency in all three conditions.

A significant main effect for treatment group also emerged (F [2, 98] = 17.31, p < .001). Planned pairwise contrasts indicated subjects in Small Groups improved in Total BSE Comptency significantly more than those in Indi-

Table 13

BSE Competency: ANCOVA for Change in Total Score

Description of Analysis: Dependent Variable is pre-to-post change in Total BSE Competency score. Independent Variable is Treatment Groups. Covariate is pre-treatment total BSE competency score and pre-treatment Powerful Others.

SUMMARY OF ANALYSIS OF COVARIANCE

Effect	df	F	Probability	Regression Coefficient
Pre-treatment Total BSE Competency	1/98	20.51	$p < .001$	-.5659
BSE Powerful Others	1/98	5.51	$p < .03$	-.7361
Treatment Groups	2/98	17.31	$p < .001$	

Pairwise Contrasts

	df	F	Probability
Small Group vs. Individual Instruction	1/98	33.29	$p < .001$
Small Group vs. Large Group	1/98	11.80	$p < .001$
Individual Instruction vs. Large Group	1/98	3.30	$p < .07$

Significance of Change in Each Group

Group	df	F	Probability
Small Groups	1/98	364.27	$p < .001$
Individual Instruction	1/98	91.73	$p < .001$
Large Groups	1/98	121.02	$p < .001$

vidual Instruction (F [1, 98] = 33.29, $p < .001$) or Large Groups (F [1, 98] = 11.80, $p < .001$). Support for competency predictions regarding Small Groups vs. Standard programs is therefore provided.

On the other hand predictions regarding differences between standard programs were not supported. While covariance adjusted change scores are higher for Large Groups ($\bar{X}$ = +7.14) than Individual Instruction ($\bar{X}$ = +5.54), further analyses reveal no significant differences (F [1, 98] = 3.30, p = .07), although a trend is apparent.

Mirror inspection. In this analysis, covariance adjusted change scores in BSE mirror inspection served as the dependent variable with Treatment Groups as the independent variable (see Table 14). Included as covariates were pretreatment scores for both BSE mirror (β = -.7093, F [1, 97] = 22.69, $p < .001$) and BSE Perceived Competency (Item #100) (β = +1.1658, F [1, 97] = 15.68, $p < .001$). The latter finding suggests that subjects initially confident in their ability to perform a competent self-examination were more likely to improve their mirror inspection performance than those initially low in confidence.

The results again indicate that, within each treatment group, scores were positive and significantly greater than zero. Small Groups (F [1, 97] = 194.76, $p < .001$); Individual Instruction (F [1, 97] = 22.00, $p < .001$), Large Groups (F [1, 97] = 50.77, $p < .001$). A significant main effect for treatment group is also present (F [2, 98] = 17.31,

Table 14

BSE Competency: ANCOVA for Change in Mirror Score

Description of Analysis:	Dependent Variable is pre-to-post change in BSE Mirror Score. Independent Variable is Treatment Groups. Covariates are pre-treatment Mirror Score and BSE Perceived Competency (Item #100).

SUMMARY OF ANALYSIS

Effect	df	F	Probability	Regression Coefficient
Pre-treatment Mirror Score	1/97	22.69	$p < .001$	-.7093
Pre-treatment BSE Perceived Competency	1/97	15.68	$p < .001$	+1.1658
Treatment Groups	2/97	17.69	$p < .001$	

Pairwise Contrasts

	df	F	Probability
Small Group vs. Individual Instruction	1/97	34.62	$p < .001$
Small Group vs. Large Groups	1/97	10.76	$p < .02$
Individual Instruction vs. Large Groups	1/97	4.72	$p < .04$

Significance of Change in Each Group

Group	df	F	Probability
Small Groups	1/97	194.76	$p < .001$
Individual Instruction	1/97	22.00	$p < .001$
Large Groups	1/97	50.77	$p < .001$

$p < .001$). As predicted, between-group comparisons reveal that Small Group participants improved their mirror inspection performance significantly more than subjects in either Individual Instruction (F [1, 97] = 34.62, $p < .001$) or Large Groups (F [1, 97] = 10.76, $p < .02$).

On the other hand, predictions concerning Standard Programs were not supported. Large Group/Lecture shows a significantly greater improvement in mirror competency than Individual Instruction (F [1, 97] = 4.72, $p < .04$).

Palpation. Table 15 provides a summary of the analysis of covariance for BSE palpation. Pre-treatment scores for palpation and BSE frequency were included as covariates. As in previous analyses for competency, an inverse relationship was observed between pre-treatment scores and post-treatment change ($\beta = -.7833$, F [1, 98] = 66.59, $p < .001$). On the other hand, a positive association emerged between pre-treatment BSE frequency and change in palpation ($\beta = +.1832$, F [1, 98] = 3.80, $p = .05$).

All three treatment groups demonstrate significant improvement: Small Groups: F (1, 98) = 213.93, $p < .001$; Individual Instruction: F (1, 98) = 73.31, $p < .001$; Large Groups: F (1, 98) = 51.78, $p < .001$. A significant main effect for treatment group emerged as well (F [2, 98] = 9.34, $p < .001$). Pairwise contrasts, again, provide support for competency predictions concerning Small Groups vs. Standard Programs. Small Group improvement in palpation is significantly greater than Individual Instruction (F [1,98] = 12.41,

Table 15

BSE Competency: ANCOVA for Change in Palpation Score

Description of Analysis: Dependent Variable is pre-to-post change in BSE Palpation. Independent Variable is Treatment Groups. Covariates are pre-treatment Palpation and BSE Frequency Scores.

SUMMARY OF ANALYSIS

Effect	df	F	Probability	Regression Coefficient
Pre-treatment Palpation Score	1/98	66.59	$p < .001$	-.7833
Pre-treatment BSE Frequency Score	1/98	3.80	$p = .054$	+.1832
Treatment Groups	2/98	9.34	$p < .001$	

Pairwise Contrasts

	df	F	Probability
Small Group vs. Individual Instruction	1/98	12.41	$p < .001$
Small Group vs. Large Groups	1/98	14.29	$p < .001$
Individual Instruction vs. Large Groups	1/98	0.17	$p = .68$

Significance of Change in Each Group

Group	df	F	Probability
Small Groups	1/98	213.93	$p < .001$
Individual Instruction	1/98	73.31	$p < .001$
Large Groups	1/98	51.78	$p < .001$

$p < .001$) and Large Group (F [1, 98] = 14.29, $p < .001$).

No signficant differences were found between Individual Instruction and Large Groups (F [1, 98], $p = .68$).

Positions. Two variables found to predict change in positional competency were pre-treatment scores for Position ($\beta = -.9926$, F [1, 98] = 45.14, $p < .001$) and BCLC-Powerful Others ($\beta = -.2200$, F [1, 98] = 6.25, $p < .02$). Therefore, both were included in the analysis as covariates. The independent variable was, of course, treatment group. Table 16 provides a summary of the ANCOVA.

As in previous competency analyses, results indicate that change scores in all three treatment groups were positive and significantly greater than zero (Small Groups: F [1, 98] = 144.71, $p < .001$; Individual Instruction: F [1, 98] = 77.42, $p < .001$; Large Groups: F [1, 98] = 93.32, $p < .001$). However, the main effect for treatment group was non-significant, F (2, 98) = 1.42, $p = .24$, as were subsequent between-group comparisons (Small Group vs. Individual Instruction: F [1, 98] = 2.39, $p = .13$; Small Group vs. Large Group: F [1, 98] = .0, $p = .99$; Individual Instruction vs. Large Groups: F [1, 98] = 1.81, $p = .18$).

Summary of Major Between Program Competency Results

Small Groups vs. Standard Programs. The results provide strong support for Hypothesis Two. On three out of four measures of BSE competency, small group participants showed significantly greater improvement than subjects in either

Table 16

BSE Competency: ANCOVA for Change in Position Score

Description of Analysis:	Dependent Variable is pre-to-post change in BSE Competency Position Score. Independent Variable is Treatment Groups. Covariates are Pre-treatment Position Score BC Powerful-Others LOC.

SUMMARY OF ANALYSIS

Effect	df	F	Probability	Regression Coefficient
Pre-treatment Position Score	1/98	45.14	$p < .001$	-.9926
Powerful Others (BC)	1/98	6.25	$p < .01$	-.2200
Treatment Group	2/98	1.42	$p = .24$	

Pairwise Contrasts

	df	F	Probability
Small Group vs. Individual Instruction	1/98	2.39	$p = .13$
Small Group vs. Large Group	1/98	.0	$p = .99$
Individual Instruction vs. Large Groups	1/98	1.81	$p = .18$

Significance of Change in Each Group

Group	df	F	Probability
Small Groups	1/98	144.71	$p < .001$
Individual Instruction	1/98	77.42	$p < .001$
Large Groups	1/98	93.32	$p < .001$

Large Groups or Individual Instruction.

Standard Programs. Predictions regarding differences between Standard Programs were not supported. When compared to Large Groups, participants receiving Individual Instruction demonstrated significantly less improvement in Mirror Inspection, and no significant differences were found on the other three competency measures.

Internal Analyses for Low Frequency Practitioners

As indicated earlier, program impact on subjects previously resistant to BSE practice is of special importance. Consequently, internal analyses on pre-treatment Infrequent Practitioners (0 to 2 BSE's per year) were performed for the four competency measures. Results are presented in Table 17a, b, c, d.) As can be seen, with the exception of position, Infrequent Practitioners, assigned to the Small Group treatment, show a higher competency change score than comparable subjects in the two Standard Programs. Total BSE Competency: Small Groups, $\bar{X}$ = 8.93 (n = 18), Individual Instruction, $\bar{X}$ = 5.77 (n = 13), Large Group/Lecture, $\bar{X}$ = 6.39 (n = 10); Mirror: Small Groups, $\bar{X}$ = 4.17 (n = 18), Individual Instruction, $\bar{X}$ = 1.76 (n = 13), Large Group/Lecture, $\bar{X}$ = 2.98 (n = 10); Palpation: Small Groups, $\bar{X}$ = 4.13 (n = 18), Individual Instruction, $\bar{X}$ = 3.03 (n = 13), Large Group/Lecture, $\bar{X}$ = 2.30 (n = 10). Indeed, except for position, Infrequent Practitioners in Small Groups show higher competency scores than Standard Program participants on all levels of pre-

Table 17a

BSE Competency - Total Score:
Internal Analysis for Low Frequency Practitioners

Frequency of BSE Pre-treatment	Pre-treatment Scores	Unadjusted Change-Scores	Adjusted Change-Scores
Small Groups (n = 41)			
0 to 2 annually	3.89	9.61	8.93
3 to 5 annually	6.22	9.78	10.15
6 to 11 annually	6.29	11.14	11.52
Individual Instruction (n = 34)			
0 to 2 annually	2.85	7.23	5.77
3 to 5 annually	5.44	3.00	3.29
6 to 11 annually	6.83	6.42	7.06
Large Group/Lecture (n = 28)			
0 to 2 annually	5.20	6.30	6.39
3 to 5 annually	5.60	7.60	8.02
6 to 11 annually	6.23	6.46	7.18

Table 17b

BSE Competency - Mirror: Internal Analysis for Low Frequency BSE Practitioners

Frequency of BSE Pre-treatment (Item Q101)	Pre-treatment Mirror	Unadjusted Change in Mirror	Adjusted Change in Mirror
Small Groups (n = 41)			
0 to 2 annually (n = 18)	.11	4.05	4.17
3 to 5 annually (n = 9)	1.11	4.89	4.87
6 to 11 annually (n = 14)	.71	5.64	5.10
Individual Instruction (n = 34)			
0 to 2 annually (n = 13)	.15	1.62	1.76
3 to 5 annually (n = 9)	.56	1.33	.89
6 to 11 annually (n = 12)	1.5	2.00	2.32
Large Group/Lecture (n = 28)			
0 to 2 annually (n = 10)	.50	2.9	2.98
3 to 5 annually (n = 5)	0.00	3.75	2.85
6 to 11 annually (n = 13)	1.00	2.86	2.90

Table 17c

BSE Competency - Palpation: Internal Analysis for Low Frequency BSE Practitioners

Frequency of BSE Pre-treatment (Item Q101)	Pre-treatment Palpation	Unadjusted Change in Palpation	Adjusted Change in Palpation
Small Groups (n = 41)			
0 to 2 annually (n = 18)	2.61	3.88	4.13
3 to 5 annually (n = 9)	3.78	3.00	3.29
6 to 11 annually (n = 14)	4.21	3.35	3.45
Individual Instruction (n = 34)			
0 to 2 annually (n = 13)	1.77	3.53	3.03
3 to 5 annually (n = 9)	3.66	.88	1.09
6 to 11 annually (n = 12)	3.50	3.08	2.54
Large Group/Lecture (n = 28)			
0 to 2 annually (n = 10)	3.40	1.70	2.30
3 to 5 annually (n = 5)	3.80	2.80	3.10
6 to 11 annually (n = 13)	3.69	1.92	1.57

Table 17d

BSE Competency - Position: Internal Analysis for Low Frequency BSE Practitioners

Frequency of BSE Pre-treatment (Item Q101)	Pre-treatment Position	Unadjusted Change in Position	Adjusted Change in Position
Small Groups (n = 41)			
0 to 2 annually (n = 18)	1.67	1.67	1.61
3 to 5 annually (n = 9)	1.33	1.89	1.85
6 to 11 annually (n = 14)	1.36	2.14	2.12
Individual Instruction (n = 34)			
0 to 2 annually (n = 13)	.92	2.08	1.74
3 to 5 annually (n = 9)	1.22	.78	.77
6 to 11 annually (n = 12)	1.33	1.83	1.76
Large Group/Lecture (n = 28)			
0 to 2 annually (n = 10)	1.30	1.70	1.75
3 to 5 annually (n = 5)	1.80	.80	1.37
6 to 11 annually (n = 13)	1.54	1.69	1.97

treatment BSE frequency (see appropriate tables) suggesting again that the Small Group Programs may be especially effective for women who were less involved in breast cancer early detection.

Impact of BSE Programs on Theoretically Relevant Beliefs

Hypothesis Three: Self-Confidence in Breast Self-Examination Performance

> *Women participating in a Small Group Breast Self-Examination Program will be more confident in their procedural ability than Standard Program Participants.*

As previously indicated the small groups program sought to provide an experience which enhanced women's competency both subjectively and objectively. In order to test predictions regarding confidence, subjects' post-treatment scores for Item #6 "At the present time do you feel you have the skill to do a competent breast self examination?" were treated to analysis of covariance. Three response alternatives were available: (1) No, (2) I'm not sure, and (3) Yes. Responses were treated as a continuous measure of subject's confidence assuming values ranging from 0 to 2. Table 15 provides a summary of the ANCOVA. A number of pre-treatment variables were shown to predict the dependent variable and were therefore included in the analysis as covariates including: Previous BSE instruction (Item #98) (F [2, 85] = 7.12, $p < .01$), Education ($\beta = +.1657$, F [1, 85] = 11.69, $p < .01$), and, as would be expected, Pre-treatment confidence ($\beta = -.6884$, F [1, 85] = 61.02, $p < .001$) (Item #100).

As can be seen, covariance-adjusted change scores in all three treatment groups were positive and significantly greater than zero (Small Groups: F [1, 85] = 45.05, $p < .001$; Individual Instruction: F [1, 85] = 13.23, $p < .001$; Large Group: F [1, 85] = 14.53, $p < .001$), although the Small Group treatment group appears to have effected the greatest change (mean covariance-adjusted change scores: Small Groups = +.66, Individual Instruction = +.41, Large Groups = +.47). However, the main effect for treatment group was non-significant (F [2, 85] = 1.59, $p = .21$) as were pairwise comparisons between groups. Nonetheless, it is of interest to note that both Small Groups and Large Groups show a trend toward significance when compared to Individual Instruction (Small Group vs. Individual Instruction, F [1, 85] = 2.81, $p = .08$; Small Group vs. Large Groups F [1, 85] = 1.51, $p = .22$; Individual Instruction vs. Large Group, F [1, 85] = .11, $p = .11$). Means and pairwise contrasts for main effect due to Item #98 (previous BSE education experience) are also provided in Table 18.

In summary, while findings on BSE confidence assumed the predicted pattern for Small Group vs. Standard Program comparisons, significant differences were not found. Contributing to these results, at least in part, is likely to be the large number of covariates included in the analysis, that resulted in the further reduction of an already small sample.

Table 18

ANCOVA for Change in BSE Self Confidence

Description of Analysis: Dependent Variable is pre-to-post change in self confidence (3 pt. scale).

Independent Variables are Treatment Groups and whether subject learned how to do BSE before (Item #98).

Covariates are pre-treatment self confidence in BSE skill, and education.

SUMMARY OF ANALYSIS

Effect	df	F	Probability	Regression Coefficient
Pre-treatment BSE Competency	1/85	61.02	$p < .001$	-.6884
Education	1/85	11.69	$p < .01$	+.1657
Learned BSE before	2/85	7.12	$p < .01$	--
Treatment Group	2/85	1.59	$p = .21$	--
Learned x Group	4/85	1.58	$p = .19$	--

Pairwise Contrasts

	df	F	Probability
Small Group vs. Individual Instruction	1/85	2.81	$p = .097$
Small Group vs. Large Group	1/85	1.51	$p = .22$
Individual Instruction vs. Large Group	1/85	.11	$p = .11$

(continued)

Table 18: ANCOVA for Change in BSE Self Confidence (continued)

Significance of Change in Each Treatment Group

Group (n)	Pre-treat. $\bar{X}$	Unadj. Change	Adj. Change	df	F	Prob.
Small Group (37)	.92	+.73	+.66	1/85	45.05	$p < .001$
Individual Instruction (34)	.85	+.56	+.41	1/85	13.23	$p < .001$
Large Group (25)	1.00	+.44	+.47	1/85	14.53	$p < .001$

Means and Pairwise Contrasts for Main Effects Due to Item #98 (Previously Learned BSE)

Group (n)	Pre-treatment Skill	Unadjusted Change	Adjusted Change
Never learned BSE (14)	.21	+.71	+.15
Learned from M.D. (47)	1.21	+.36	+.56
Learned from Other (35)	.80	+.86	+.82

Contrast	df	F	Probability
Never vs. M.D.	1/85		$p < .05$
Never vs. Other	1/85		$p < .001$
M.D. vs. Other	1/85		$p < .05$

Hypothesis Four: Breast Cancer Locus of Control

When compared to Standard Program participants, women attending a Small Group program will demonstrate the following changes in Breast Cancer Locus of Control beliefs:

a. A greater increase in Internality

b. A greater decrease in Externality

The development of the Small Group was based on the assumption that women's failure to practice BSE could be explained by their locus of control beliefs regarding breast cancer. Women who do not perceive a contingency relationship between their behavior and their health outcome, vis-a-vis breast cancer, will not practice BSE. It then follows that women who believe that their personal behavior can affect their health (specific to breast cancer) will perform self-examinations routinely. Thus, the program was designed to be an "internality" training experience.

In order to test Hypothesis Four, subjects' pre- and post-treatment scores on the BCMLC scale were treated to analysis of covariance. Pre- and post-measures of subjects' breast cancer locus of control were obtained from their scores on the BMLC scale. As previously indicated, this scale includes three sub-scales: Breast Cancer Internal (eight items); Breast Cancer Powerful Others (five items); and Breast Cancer Change (eleven items). Each subscale uses a six-point Likert-type response format. Responses are treated as a continuous measure of subject's locus of control orientation taking values ranging from 1-6 with 1 indicating

strongly disagree and 6 indicating strongly agree. Separate analyses were performed on each of the three dimensions and are reported individually. Table 19 provides a summary of cell means for all three measures.

Breast Cancer Internal Locus of Control. In this analysis, the dependent variable was covariance-adjusted change scores for the BCI scale with treatment group the independent variable. As might be expected, initial analyses of potential predictors of BCI change revealed a significant negative relationship between pre-treatment BCI scores and BCI change (β = -.5326, F [1, 99] = 71.16, p < .001) and therefore it was included as a covariate. Table 20 provides a summary of the ANCOVA.

Looking first at Table 19, it can be seen that even before program participation, subjects in this sample were highly Internal, at least with regard to breast cancer (pre-treatment means: Small Group = 5.27; Individual Instruction = 5.06; Large Groups = 5.05). Indeed, while study sample means on Internal scales for other LOC measures indicate that subjects in this sample tend to hold Internal LOC beliefs toward health and life in general, they are not as strongly skewed as the BCMLC scores. (See Table 21: Norms for the BCMLC Scales for Selected Study Samples; Table 22: Norms for the MHLC Scale for Selected Study Samples; Table 23: Norms for Levinson's Scale for Selected Study Samples.)

Table 19

Breast Cancer Locus of Control:
Cell Means for Likert Scales

Group	n	Pre-treatment Mean	Change-Score	Covariance-Adjusted Change-Score
		Internal		
Small Groups	41	5.27	+.27	+.34
Individual Instruction	34	5.06	+.19	+.15
Large Groups	28	5.05	+.49	+.44
		Powerful Others		
Small Groups	41	2.32	-.48	-.56
Individual Instruction	34	2.34	-.08	-.17
Large Groups	28	2.82	-.79	-.57
		Chance		
Small Groups	41	1.61	-.21	-.21
Individual Instruction	34	1.66	-.11	-.10
Large Groups	28	1.63	-.26	-.26

Table 20

Breast Cancer Locus of Control:
ANCOVA for Change in Internal Score

Description of Analysis: Dependent Variable is pre-to-post change score for Internal Locus scale.
Independent Variable is Treatment Group.
Covariate is Pre-treatment Internal Locus.

SUMMARY OF ANALYSIS OF COVARIANCE

Effect	df	F	Probability	Regression Coefficient
Pre-treatment Internal Locus	1/99	71.16	$p < .001$	-.5356
Treatment Groups	2/99	3.12	$p < .05$	--

Pairwise Contrasts

	df	F	Probability
Small Group vs. Individual Instruction	1/99	3.15	$p = .079$
Small Group vs. Large Group	1/99	.65	$p = .42$
Individual Instruction vs. Large Group	1/99	5.79	$p < .02$

Significance of Change in Each Group

Group	df	F	Probability
Small Groups	1/99	20.96	$p < .001$
Individual Instruction	1/99	3.15	$p = .079$
Large Groups	1/99	23.54	$p < .001$

Table 21

Normative Data for the Breast Cancer Multidimensional Locus of Control (BCMLC) Scales for Selected Study Subsamples

Study Sample	Age	n	Internal		Powerful Others		Chance	
			$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Intake	36.1	268	5.08	.67	2.57	1.12	1.68	.67
No Program	35	123	5.07	.59	2.56	1.09	1.67	.57
Program	37.1	145	5.09	.73	2.57	1.15	1.69	.75
Final Study Sample	38.48	103	5.14	.75	2.46	1.12	1.63	.70
No Follow-up	33.66	42	4.97	.67	2.83	1.21	1.82	.87
Small Groups	37.63	41	5.27	.80	2.32	1.10	1.61	.80
Individual Instruction	39.97	34	5.05	.80	2.34	1.61	1.66	.68
Large Groups	37.92	28	5.04	.60	2.82	1.03	1.62	.57

Note. The above data are from Ross et al. (Note 2).

Table 22

Normative Data for Multidimensional Health
Locus of Control Scales for Selected Study Subsamples

Study Sample	Age	n	Internal		Powerful Others		Chance	
			$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Intake	36.1	268	4.38	.72	3.22	.89	2.73	.92
No Program	35.0	123	4.34	.76	3.19	.87	2.67	.89
Program	37.1	145	4.42	.68	3.24	.90	2.79	.94
Final Study Sample	33.48	42	7.39	.64	3.30	.92	2.92	1.00
No Follow-up	38.5	103	4.43	.69	3.21	.90	2.73	.92
Small Groups	37.6	41	4.44	.77	3.05	.96	2.63	.92
Individual Instruction	39.97	34	4.49	.69	3.26	.98	2.79	1.01
Large Groups	37.92	28	4.35	.58	3.38	.67	2.81	.78

Note. The above data are from Ross et al. (Note 2).

Table 23

Normative Data for Levinson Multidimensional Locus of Control Scales for Selected Study Subsamples

Study Subsample	Age	n	Internal		Powerful Others		Chance	
			$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Intake	36.10	268	4.41	.65	2.44	.87	2.88	.83
No Program	35.10	123	4.38	.65	2.35	.80	2.87	.76
Program	37.10	145	4.44	.64	2.50	.92	2.87	.89
Final Study Sample	38.48	103	4.41	.61	2.50	.89	2.83	.85
No Follow-up	33.65	42	4.50	.72	2.50	.99	2.97	.97
Small Groups	37.63	41	4.44	.73	2.46	.89	2.88	.79
Individual Instruction	39.97	34	4.35	.56	2.54	.98	2.86	1.06
Large Groups	37.92	28	4.43	.48	2.52	.81	2.74	.66

Note. The above data are from Ross et al. (Note 2).

According to Table 20 both Small Groups and Large Groups produced a significant within-group increase in Breast Cancer internality (Small Groups, F [1, 99] = 20.96, $p < .001$; Large Groups, F [1, 99] = 23.54, $p < .001$); however, mean covariance-adjusted change scores suggest a slightly greater increase for Large Groups (Small Groups = +.34; Individual Instruction = +.15; Large Groups = +.44). Whereas a significant main effect for treatment group emerged (F [2, 99] = 3.12, $p < .05$), pairwise comparisons do not provide support for the hypothesis. A trend toward significance is found between Small Groups and Individual Instruction (F [1, 99] = 3.15, $p = .07$), however, differences between Small Groups and Large Groups are clearly non-significant while differences between Large Group and Individual Instruction are significant (F [1, 99] = 5.79, $p < .02$).

Breast Cancer Powerful Others Locus of Control. Table 24 provides a summary of this ANCOVA. Of interest are findings indicating that although BCLC-P change is inversely associated with pre-treatment scores (β = -.6091, F [1, 98] = 52.46, $p < .001$) it is positively associated with BCLC-Chance (β = +.4552, F [1, 98] = 11.93, $p < .001$) suggesting that while subjects initially oriented toward powerful others are likely to become less so, those with a chance orientation are likely to develop stronger beliefs toward powerful others.

Significant decreases in powerful-other orientation are limited to Small Groups (F [1, 98] = 19.85, $p < .001$) and

Table 24

Breast Cancer Locus of Control:
ANCOVA for Change in Powerful Others Score

Description of Analysis: Dependent Variable is pre-to-post change-score for Powerful Others LOC.

Independent Variable is Treatment Group.

Covariates are pre-treatment Powerful Others and Chance LOC scores.

SUMMARY OF ANALYSIS OF COVARIANCE

Effect	df	F	Probability	Regression Coefficient
Pre-treatment Powerful Others	1/98	52.46	$p < .001$	-.6091
Pre-treatment Chance	1/98	11.93	$p < .001$	+.4552
Treatment Groups	2/98	2.72	$p = .0707$	--

Pairwise Contrasts

	df	F	Probability
Small Group vs. Individual Instruction	1/98	4.41	$p < .05$
Small Group vs. Large Group	1/98	0.00	$p = .96$
Individual Instruction vs. Large Group	1/98	3.66	$p = .059$

Significance of Change in Each Group

Group	df	F	Probability
Small Groups	1/98	19.85	$p < .001$
Individual Instruction	1/98	1.50	$p = .22$
Large Groups	1/98	13.57	$p < .001$

Large Group/Lecture (F [1, 98] = 13.57, $p < .001$). Findings for Individual Instruction were non-significant (F [1, 98] = 1.50, $p = .22$) as was the main effect for Treatment Group (F [2, 98] = 2.72, $p = .07$). Pairwise contrasts provide partial support for predictions. Whereas significant differences between Small Groups and Individual Instruction were found (F [1, 98] = 4.41, $p < .05$) none were shown for Small Groups vs. Large Groups (F [1, 98] = 0.00, $p = .96$). Differences between Individual Instruction and Large Groups reveal a trend toward significance (F [1, 98] = 3.66, $p = .059$).

Breast Cancer Chance Locus of Control. The only covariate entering into this analysis is pre-treatment chance which shows the typical inverse relationship with post-treatment change ($\beta = -.2169$, F [1, 99] = 14.86, $p < .001$). (See Table 25.) Similar to findings on the other external BCMLC dimension, significant within treatment group change is negative and restricted to Small Groups and Large Group/Lecture (Small Groups, F [1, 99] = 11.51, $p < .01$; Large Group/Lecture, F [1, 99] = 12.17, $p < .001$; Individual Instruction, F [1, 99] = 2.24, $p = .14$), and the main effect for treatment group was non-significant (F [2, 99] = 1.35, $p = .26$). Findings for pairwise contrasts, subsequently performed, were non-significant as well (Small Groups vs. Individual Instruction: F [1, 99] = 1.39, $p = .24$; Small Groups vs. Large Groups: F [1, 99] = .28, $p = .60$; Large Group vs. Individual Instruction: F [1, 99] = 2.49, $p = .12$).

Table 25

Breast Cancer Locus of Control:
ANCOVA for Change in Chance Score

Description of Analysis:	
	Dependent Variable is pre-to-post change score for Chance LOC scale.
	Independent Variable is Treatment Group.
	Covariate is pre-treatment Chance LOC.

SUMMARY OF ANALYSIS OF COVARIANCE

Effect	df	F	Probability	Regression Coefficient
Pre-treatment Chance LOC	1/99	14.86	$p < .001$	-.2169
Treatment Groups	2/99	1.35	$p = .26$	--

Pairwise Contrasts

	df	F	Probability
Small Group vs. Individual Instruction	1/99	1.39	$p = .24$
Small Group vs. Large Group	1/99	.28	$p = .60$
Individual Instruction vs. Large Group	1/99	2.49	$p = .12$

Significance of Chance in Each Group

Group	df	F	Probability
Small Groups	1/99	11.51	$p < .01$
Individual Instruction	1/99	2.24	$p = .14$
Large Groups	1/99	12.17	$p < .001$

Internal Analysis of Theoretically Relevant Variables for Low Frequency Practitioners

Again, given the exploratory nature of this research, interest was focused on Program impact and pre-treatment Infrequent Practitioners. Consequently, similar to previous internal analyses on BSE behavior, further analyses were performed on the theoretically relevant variables presented in this section (i.e. BSE Self-Confidence, and Breast Cancer Locus of Control). Results are reported in Tables 26a, b, c, d.

Looking first at BSE confidence (Table 26a), it can be seen that the covariance-adjusted mean score for Infrequent Practitioners assigned to Small Groups is higher than those for comparable frequency categories in the two Standard Programs (Small Groups: $\bar{X}$ = +.65, $\underline{n}$ = 18; Individual Instruction: $\bar{X}$ = +.30, $\underline{n}$ = 13; Large Group/Lecture: $\bar{X}$ = +.15, $\underline{n}$ = 10).

Subsequently examined were the three breast cancer locus of control dimensions. Table 26b provides the results for Internality. Contrary to predictions both Standard Programs appear to have effected a greater increase in Low Frequency Practitioners than the Small Group Treatment (Small Groups: $\bar{X}$ = +.20, $\underline{n}$ = 18; Individual Instruction: $\bar{X}$ = +.31, $\underline{n}$ = 13; Large Group/Lecture: $\bar{X}$ = +.58, $\underline{n}$ = 10). This pattern of findings does change with Powerful Others (Table 26c) where results for Small Groups are almost comparable to those in Individual Instruction and both show a larger decrease than Large Group/Lecture (Small Groups: $\bar{X}$ = -.51, $\underline{n}$ = 18;

Table 26a

BSE - Self Confidence: Internal Analysis for Low Frequency Practitioners

Frequency of BSE Pre-treatment (Item Q101)	Pre-treatment Perceived Competency	Unadjusted Change in Perceived Competency	Adjusted Change in Perceived Competency
Small Groups (n = 41)			
0 to 2 annually (n = 18)	.44	1.00	.65
3 to 5 annually (n = 9)	1.12	.62	.76
6 to 11 annually (n = 14)	1.38	.46	?
Individual Instruction (n = 34)			
0 to 2 annually (n = 13)	.38	.77	.30
3 to 5 annually (n = 9)	1.22	.22	.48
6 to 11 annually (n = 12)	1.08	.58	?
Large Groups (n = 28)			
0 to 2 annually (n = 10)	.67	.44	.45
3 to 5 annually (n = 5)	-.33	1.67	?
6 to 11 annually (n = 13)	.61	1.07	.33

Table 26b

BCLC - Internal: Internal Analysis for Low Frequency BSE Practitioners

Frequency of BSE Pre-treatment (Item Q101)	Pre-treatment Internal LOC	Unadjusted Change in LOC	Adjusted Change in LOC
Small Groups (n = 41)			
0 to 2 annually (n = 18)	4.94	+.31	+.20
3 to 5 annually (n = 9)	5.53	+.08	+.30
6 to 11 annually (n = 14)	5.54	+.34	+.56
Individual Instruction (n = 34)			
0 to 2 annually (n = 13)	4.89	+.44	+.31
3 to 5 annually (n = 9)	4.82	+.15	-.03
6 to 11 annually (n = 12)	5.41	-.05	+.10
Large Groups (n = 28)			
0 to 2 annually (n = 10)	4.95	+.69	+.58
3 to 5 annually (n = 5)	5.25	+.20	+.26
6 to 11 annually (n = 13)	5.05	+.44	+.39

Table 26c

BCLC - Powerful Other: Internal Analysis for Low Frequency BSE Practitioners

Frequency of BSE Pre-treatment (Item Q101)	Pre-treatment P.O. LOC	Unadjusted Change in P.O. LOC	Adjusted Change in P.O. LOC
Small Groups (n = 41)			
0 to 2 annually (n = 18)	2.93	2.93	-.51
3 to 5 annually (n = 9)	1.90	1.89	-.50
6 to 11 annually (n = 14)	1.81	1.82	-.66
Individual Instruction (n = 34)			
0 to 2 annually (n = 13)	2.60	-.48	-.56
3 to 5 annually (n = 9)	2.92	-.14	.14
6 to 11 annually (n = 12)	1.61	.40	.02
Large Groups (n = 28)			
0 to 2 annually (n = 10)	2.80	-.68	-.39
3 to 5 annually (n = 5)	3.00	-1.12	-1.04
6 to 11 annually (n = 13)	2.76	2.77	-.50

Table 26d

BCLC - Chance: Internal Analysis for Low Frequency BSE Practitioners

Frequency of BSE Pre-treatment (Item Q101)	Pre-treatment Chance LOC	Unadjusted Change in LOC	Adjusted Change in LOC
Small Groups (n = 41)			
0 to 2 annually (n = 18)	1.91	-.20	-.13
3 to 5 annually (n = 9)	1.40	-.18	-.23
6 to 11 annually (n = 14)	1.35	-.30	-.30
Individual Instruction (n = 34)			
0 to 2 annually (n = 13)	1.95	-.21	-.14
3 to 5 annually (n = 9)	1.64	.03	.03
6 to 11 annually (n = 12)	1.36	-.11	-.17
Large Groups (n = 28)			
0 to 2 annually (n = 10)	1.48	-.29	-.32
3 to 5 annually (n = 5)	2.12	-.52	-.41
6 to 11 annually (n = 13)	1.55	-.14	-.16

Individual Instruction: $\bar{X}$ = -.56, n = 13; Large Group/ Lecture: $\bar{X}$ = -.39, n = 10). On the other hand, the second externality dimension, chance (Table 26d) shows the Large Group treatment group eliciting the larger decrease ($\bar{X}$ = -.32, n = 10) when compared to Small Groups ($\bar{X}$ = -.13, n = 18) or Individual Instruction ($\bar{X}$ = -.14, n = 13).

Relationships between Predictors of BSE Behavior and BSE Practice

This research proposed a theoretical model, based on locus of control theory, to explain women's BSE behavior. In order to examine relationships between relevant predictors and BSE behavior a series of simple correlational analyses were performed on subject's pre-treatment scores for BSE Frequency, Competency, BSE Self-Confidence and BCLC. Also included were age, a measure of social desirability (the MCSD Scale), both the MHLC and Levinson's LOC Scales. The latter two scales were included for purposes of establishing evidence for the concurrent and predictive validity of the BCMLC scale and these data will be reported elsewhere. In order to determine whether findings based on the Final Study Sample could be generalized to other study subsamples, analyses were performed on three pairs of selected study samples. The three sample pairs chosen for contrasts include: The Final Study Sample vs. The No Program Sample; The Program Sample vs. The No Program Sample; and, The Final Study Sample vs. The No Follow-up Sample. Results are

reported below; only significant correlates are presented (see Table 21, p. 93).

Relationship between Variables and Selected Study Sample Contrasts

Final Study Sample vs. No Program. As can be seen from Table 27 there is a small but significant association with BSE Frequency (r = +.13, p < .05) and age (r = +.15, p < .05) for this first contrast. Thus subjects participating in the Final Study Sample are likely to be older and more frequent practitioners than those subjects attending pre-treatment data collection but not continuing on to the BSE Programs.

Program vs. No Program. None of the variables or measures are significantly associated with this sample contrast.

Final Study Sample vs. No Follow-up. A higher degree of pre-treatment competency appears to be associated with the Final Study Sample when compared to subjects not returning for post treatment follow-up.

Relationships between Predictors and BSE Behavior

As can be seen from Table 28, the strongest predictors of pre-treatment BSE frequency were BSE competency (r = +.46) and BSE Self-Confidence (r = +.34). A moderate correlation is found between Competency and Self-Confidence (r = +.40) as well. While Breast Cancer Internality does not predict BSE competency, or Self-Confidence, it does correlate significantly with BSE competency (r = +.35). On the other

Table 27

Correlations Between Selected Study Subsamples and Relevant Variables

		Final Study Sample[a] vs. No Program[b]	Program[c] vs. No Program	Total Study Sample vs. No Follow-up
LOC	BCI	.05	.01	.10
	HI	.05	.05	.03
	LI	.02	.04	-.07
	BCP	.04	.00	-.15
	HP	.00	.02	-.05
	LP	.09	.07	-.00
	BCC	-.03	.01	-.11
	HC	.03	.06	-.09
	LC	-.02	-.00	-.07
	BSE Frequency	.13*	.08	.14
	BSE Competency - Total Score	.03	-.02	.16*
	BSE Perceived Competency	-.00	-.01	.05
	Age	.15*	.09	.20
	MCSD Scale	.05	.05	-.01

[a]Final Study Sample n = 103.

[b]No Program Sample n = 123.

[c]Program Sample n = 145.

[d]No Follow-Up Sample n = 42.

*$p < .05$.

Table 28

Correlations Between Dependent Variables and Other Variables for the Final Study Sample (n = 103)

	Predictors					
Variables	BSE Frequency	BSE Competency	Perceived Competency	BCI-Loc.	BCP-Loc.	BCC-Loc.
BCI	.18	.35**	.13		-.67**	-.61**
HI	-.12	.07	-.03		-.01	-.16
LI	-.02	.18	-.10		-.09	-.17
BCP	-.28**	-.22*	-.17	-.67**		.50**
HP	-.04	-.19*	-.20*	-.18**		.29**
LP	-.31**	-.25**	-.15	-.36**		.43**
BCC	-.24**	-.32**	-.12	-.60**	.50**	
HC	-.21*	-.28**	-.10	-.44**	.43**	
LC	-.13	-.18	-.11	-.38**	.30**	
BSE Competency	.46**		.40**			
BSE Perceived Competency	.34**	.40**				
Age	.05	.00	-.05	-.10	.20*	.00
SD	.04	-.13	.06	-.09	.19	.02

Note: BSE Competency = Total Score
Perceived Competency = BSE Self Confidence

*p < .05.

**p < .01.

hand, external BCLC beliefs show a significant and negative relationship with BSE frequency (BCC $\underline{r}$ = -.24, BCC $\underline{r}$ = -.28) as well as Competency (BCP $\underline{r}$ = -.22, BCC $\underline{r}$ = -.32). Neither external BCLC measure predicts BSE Self-Confidence.

None of the predictors or BSE behavior variables correlate significantly with age or social desirability. While some significant correlations are found between relevant variables and scores on the MHLC and Levinson scale except for two cases, overall the BCLOC measures yield higher correlations. Exceptions to this are correlations between the Powerful Other Locus of Control and BSE Frequency and Competency. In this case the Levinson P scale demonstrates a slightly higher correlation.

CHAPTER FOUR

DISCUSSION

Despite evidence of the efficacy of breast self-examination, efforts to motivate women to engage regularly in the practice have yielded limited results. Using a social psychological framework, this research developed an alternative educational method and compared its effectiveness to standard BSE programs presently available. Although results suggest that further study is needed regarding program impact on frequency, the Small Group Program was clearly the more effective intervention in eliciting a competent BSE performance.

Program Impact on BSE Behavior

It was predicted that small group participants would practice BSE more frequently than those attending standard programs. Unfortunately the results are not conclusive. Irrespective of the kind of intervention, subjects averaged approximately two BSE's post-treatment. Consequently, differences between treatment groups were non-significant. When one considers the fact that follow-up was limited to a three month period, on a small sample (n = 103) of highly motivated women, of whom more than half were moderate to frequent practitioners prior to the intervention, these findings are

not surprising. Important to bear in mind is that this research was essentially exploratory in nature, designed to evaluate the potential of the small group approach. Given this perspective, other frequency results may be interpreted as suggestive and as warranting further study.

For example, there was some suggestion that the Small Group Program may have been uniquely effective in motivating routine performance in women previously resistant to regular practice. Also, frequency means (covariance-adjusted) were in the predicted direction with Small Group participants scoring higher than those in Standard Programs. While these findings must be viewed with caution, and conclusions cannot be made, they do suggest the possibility that replication employing a longer follow-up period on a larger and less restricted sample (in terms of pre-existing BSE behavior) may generate more conclusive results.

While frequency results are not conclusive, the Small Group Program was clearly the most successful in producing competent BSE practitioners. On three out of four measures, including overall competency, Small Group participants demonstrated significantly greater improvement in the conduct of their performance than subjects receiving standard methods of instruction. Particularly important here are results of analyses performed on potential predictors of pre-intervention BSE frequency in which competency emerged as the strongest predictor (r = +.46) suggesting that the Small Group method may be the most effective way to address both components.

Given the aforementioned results for self-examination competency a non-significant finding for between-group differences in position is somewhat surprising. Positional competency includes four components: (a) sitting or standing; (b) lying down; (c) pillow under appropriate shoulder, and (d) appropriate arm folded behind head. Since internal analyses were not performed on the scales it is not possible to determine which items account for the variance in post-treatment position scores. However, the data do suggest a possible explanation.

Despite seemingly different program methods of instruction, post-intervention scores (covariance-adjusted means) for positional competency were equal for both Small and Large Group interventions ($\bar{X}$ = 1.82) suggesting that instruction in positional techniques may have been similar. In fact it was. Beyond information provided by the film shown during the Small Group's first session, the recommendation to perform one's monthly BSE twice, lying down as well as sitting or standing, was not further reviewed. Similarly, the Large Group treatment provided the same film with no additional instruction. Subjects may have assumed that of the two positions, one could choose a preferred sequence.

While the aforementioned explanation is only speculative, the use of internal analyses on measures of competency does suggest a systematic approach to identifying problematic areas in BSE instruction, thereby enabling further refinement of the Small Group Program and Standard methods as well.

The Locus of Control Model

A second objective of this research was to test the validity of the locus of control model to explain women's breast self-examination behavior. While not its major focus, the research was designed to provide at least preliminary information regarding the theory's explanatory power. A graphic representation of relationships between relevant variables emerging from the results is presented in Figure 1. As can be seen, while some theoretical revision is necessary, the results provide support for the proposed model, albeit for this limited sample.

Locus of Control

It was proposed that certain key social psychological factors, namely locus of control beliefs, mediate women's breast self-examination behavior. According to the model, women who perceive a non-contingency relationship between their BSE behavior and their health outcome (BCLC-External) are less likely to perform monthly self-examination than those who believe their personal behavior can affect their health (BCLC-Internal).

As predicted, externals were less likely to practice routine BSE as evidenced by the significant but inverse relationship between externality and BSE frequency (BCLC-Chance, r = -.24; BCLC-Powerful Others, r = -.28) obtained from measures taken at Intake. On the other hand, while the correlation was in the predicted direction, the

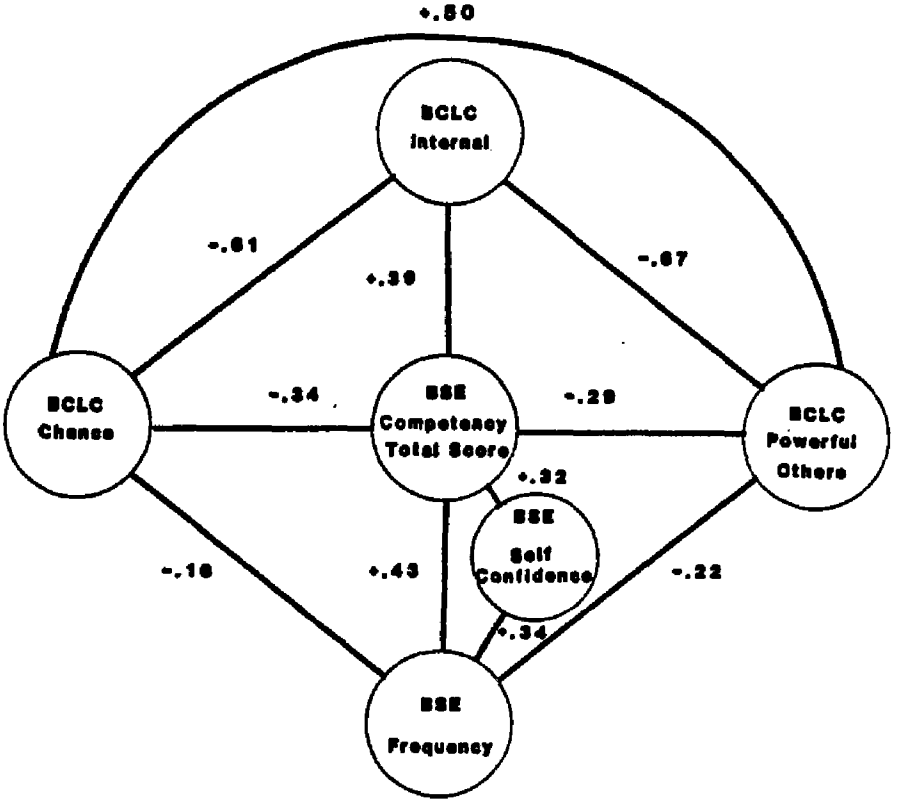

Figure 1. Significant Correlations Among Predictors of BSE Behavior ($p < .01$)

relationship between internality and BSE frequency was non-significant (r = +.18). In view of the aforementioned relationship between both measures of BCLC-Externality and BSE Frequency, this non-significant finding is surprising. However, at least three plausible explanations meriting discussion are suggested by the data including: range restrictions, moderating variables, and properties of the scale.

Restricted range. Similar to factors cited for findings on BSE Frequency, the restricted distribution for BCLC-Internality and Frequency may have reduced the size of the correlation between these two measures. Subjects in this sample were highly Internal (BCLC-Internal mean = 5.14, SD = .75) and many did practice BSE if not frequency (38%, n = 38), at least moderately (22%, n = 22). A more appropriate test of the relationship between Internality and BSE Frequency requires a distribution with wider range of locus of control beliefs as well as breast self-examination practice. Indeed, this same kind of effect may have reduced the size of correlations between Externality and Frequency, since BCLC-External scores at Intake were markedly skewed in a negative direction (BCLC-Chance, $\bar{X}$ = 1.63, SD = .70; BCLC-Powerful Other, $\bar{X}$ = 2.46, SD = 1.12).

Properties of the scale. Another area of consideration concerns the Internal scale itself. After all, of the three dimensions, it did demonstrate the lowest reliability (alpha reliability = .69). Since the scale includes items about breast self-examination and breast cancer as well as items

about breast cancer only, its ability to predict levels of BSE practice may have been attenuated. While intuitively one would expect the two factors to be related this may not be true.

Also influencing test scores may be response styles. Non-significant correlations between the BCLC-Internal scale and measures of social desirability reduce the possibility of inflated scores due to favorable responding. And, acquiescence is probably not a major factor since three of the eight items are keyed negatively. Furthermore, subjects' scores were skewed toward the negative direction on the External scales, further reducing the likelihood of distorted scores due to acquiescent effects. However, this latter finding does suggest the possibility that a tendency to respond extremely may be affecting subjects' scores (Hamilton, 1968). One way to assess this problem is to look at subjects' responses on other measures. If extreme responding is a stylistic tendency then scores for other measures should elicit the same response. However, while subjects do tend to be above the scale midpoint on other Internal locus of control scales and below midpoint on External measures (MHLC: Internal, $\bar{X}$ = 4.43, SD = .69; Chance, $\bar{X}$ = 2.73, SD = .92; Powerful Others, $\bar{X}$ = .321, SD = .90; Levinson: Internal, $\bar{X}$ = 4.41, SD = .61; Chance, $\bar{X}$ = 2.83, SD = .85; Powerful Others, $\bar{X}$ = 2.50, SD = .89), the scores are less extremely skewed than those on the breast cancer measure. Thus it is unlikely that the markedly internal scores

represent an enduring characteristic. On the other hand, anxiety as well as the meaningfulness of a stimulus situation has been found to be a determinant of extreme responding (Hamilton, 1968). Certainly, both of these factors could play a role in the way subjects respond to the BCMLC scale. What is important, however, is whether it affects the reliability of the measure. As reported elsewhere, subjects' scores on the BCMLC scales were dichotomized and measures of reliability and validity were obtained (Ross, Bard et al., Note 2). While dichotomization of scores resulted in a decreased alpha (alpha reliability = .55), the predictive validity of the Internal scale was lessened as well (i.e. BSE Competency and BCLC-Internal dichotomized correlation coefficient = +.28, p = .00 vs. BSE Competency and BCLC-Internal Likert correlation coefficient = +.43). Thus, while subjects may manifest a tendency to respond extremely to this measure statistically controlling for these effects results in a loss of information.

It would nonetheless be useful to explore the role of extreme responding to theoretical notions regarding BSE practice since, as mentioned earlier, previous research has suggested that women most likely to practice BSE perceive themselves as vulnerable to the disease (Kelly, 1979; NCI, 1980). This kind of perception is likely to elicit anxiety and in line with the locus of control theory, BSE practice may represent efforts to attenuate this threat by exercising personal control. Evaluation of the extent to which extreme

responding may represent perceived vulnerability and predict BSE practice holds promise as an important direction for future research.

Moderating variables. Also to be considered are the moderating effects of other variables. Recall that the model implicitly assumes that a woman is likely to practice BSE only if she believes that her skill is sufficiently competent to assure her the early protection needed to protect her health. It is possible that while a woman may be Internal, and personally believe in the efficacy of breast self-examination, she may not act on that belief if her skill is not sufficiently competent to make her practice worthwhile. In other words, competency may moderate the relationship between Internality and BSE performance.

Results emerging from this study provide some support for this moderating explanation. As can be seen in Figure 1, both objective and subjective measures of competency did predict BSE frequency. On the other hand, while a correlation between Internality and Frequency was not found, all three locus of control dimensions did predict BSE competency (Total Score), and Internality was the strongest predictor (BCLC-Internal, r = +.35; BCLC-Powerful Other, r = -.22; BCLC-Chance, r = -.32). These results suggest that while Internal women are more likely to be competent practitioners, if they are not competent, quite reasonably, they are not likely to engage in a behavior they perceive as useless.

It may be that Internality is a necessary but insufficient condition for routine BSE practice and reasonable levels of competency are required as well. This interpretation is not incompatible with the model as proposed, but conclusions regarding its validity require further study. Given the interrelationships among predictors, multiple correlation/regression techniques are more appropriate to test a theoretical model and such analyses are planned for the future. Nonetheless these findings are helpful in that they provide preliminary information supporting the model with some revision, and a direction for future research.

Program Impact on Theoretically Relevant Beliefs

Locus of Control

Based on the assumption that women's locus of control beliefs mediate their breast self-examination behavior, the Small Group Program was designed to be an "internality training experience." Employing specially designed methods of procedure, its purpose was to enhance subject's internal orientation regarding breast cancer, while attenuating their external beliefs. Despite its theoretical basis, for the most part the Small Group Program effected no greater change in locus of control beliefs (BCMLC) than the Standard Programs. In fact, on Internality the Large Group Program did somewhat better in that it did achieve a significant difference with Individual Instruction ($p = .02$), whereas Small Group differences only achieved a trend ($p = .08$). To be noted also are

results indicating that both Small and Large Groups achieved a significantly greater decrease in Powerful Other than Individual Instruction. Given the marked methodological and theoretical differences between programs an important question is then why didn't the Small Group have a stronger impact on subjects' locus of control beliefs, especially when compared to the Large Group treatment?

Similar to explanations offered previously, an important factor contributing to these non-expected findings may be ceiling effects. It is likely that pre-existing high levels of locus of control restricted the extent to which subjects could reasonably increase the strength of their response, thus delimiting the potential for change.

Another possibility is the Small Group Program itself. Despite theoretical assumptions, it is possible that although it was successful in effecting improvement in BSE competency, the Small Group Program performance cannot make a unique contribution toward attitudinal change. In general, these data are not conclusive regarding program impact on locus of control beliefs. Important to bear in mind is that this sample is highly internal and results may not be representative of less restricted samples.

BSE Self-Confidence

Another objective of the Small Group Program was to provide an experience in which participants' performance of BSE was perceived as competent on both an objective and

subjective level. Thus it was predicted that women participating in the Small Group Program would experience a greater increase in confidence regarding their procedural ability than Standard Program participants.

Essentially it was assumed that women, confident in their BSE skills, were more likely to practice BSE because they perceived a contingency relationship between their BSE behavior and their health outcome. Thus, self confidence was conceptualized as an alternative way of assessing locus of control beliefs. However, data obtained at Intake provide only partial support for these assumptions. While BSE confidence was found to be positively and significantly associated with Frequency, correlations with MBCLC subscales were non-significant precluding its use as an alternative locus of control measure. Furthermore, although results on comparisons between programs are suggestive they are not conclusive.

For example, the Small Group did achieve a positive and greater change in self confidence than Standard Programs. Also, Pre-treatment Low Frequency Practitioners, performing three BSE's post-treatment, achieved higher scores (covariance-adjusted) than any level of pre-treatment/post-treatment frequency category in the Standard Groups. Nonetheless these differences did not achieve significance. One factor likely to have contributed to these weakened results is low cell frequencies.

Recall that the ANCOVA for BSE self-confidence was the only analysis to require three covariates: previous BSE learning experience, education, and pre-treatment perceived competency. Partialing out these effects, on samples already small, may have reduced cell frequency such that the possibility of achieving significant effects was attenuated.

Another consideration concerns the demand characteristics of the assessment situation. Participants responded to the item after having submitted to a BSE evaluation. The nature of the evaluation situation may have raised doubts, within participants, regarding their competency. For example, after subjects appeared to have completed their BSE performance evaluators used two probes: (1) "As far as you know, is there anything else that should be included in a breast self-examination?"; and (2) "As far as you know, are there any other positions that should be included in a breast self-examination?" Participants may have interpreted these probes as suggestions that something has been left out of their performance and consequently across treatment groups underestimated their procedural skill.

Also, the measure itself may have been unreliable. Having confidence in one's procedural skill and believing that a competent performance of that skill will protect one's health from advanced disease may be two separate issues. Thus, conclusions regarding the relationship between confidence and frequency of practice await further investigation with special attention to methodological and measurement concerns.

Comparisons Between Standard Programs

This study also included predictions regarding the two Standard Programs. Based on previous research suggesting that personal BSE instruction increased the likelihood of breast self-examination practice (Gallup Organization, 1973) it was hypothesized that Individual Instruction would effect greater improvement in BSE frequency and competency when compared to the Large Group/Lecture approach. Predictions were, however, not supported by the data. Both programs produced comparable effects for frequency and on only one measure of competency (mirror) did a significant difference emerge and it was not in the predicted direction. Since previous research did not include systematic comparisons, and only examined frequency, it is difficult to place findings from this study in an appropriate perspective. Nonetheless it should be noted that personal instruction is typically provided by male physicians. In this study all instructors were female and all but one were nurses (one of the Large Group Programs was provided by a female physician). While it is possible that frequency of performance may be mediated by gender and status, it is not likely that competency would be affected. Nonetheless, in order to evaluate the effects of gender and status on Standard Programs, further research, systematically controlling for both variables, is necessary.

IMPLICATIONS

While findings emerging from this study have numerous implications for further research, of special importance are additional efforts to evaluate the potential of the Small Group Program, clarify theoretical premises, and explore implications for clinical interventions to reduce the risk of breast cancer.

Evaluation Concerns

The extent to which these results can be generalized to all women is unknown. The size of the sample is small and the study took place in an occupational setting. Thus, it is unknown to what degree subjects are representative of women in different or even similar settings. Furthermore, while subjects were randomly assigned to treatment groups, they were self-selected in that they expressed an interest in participating in a breast self-examination program and maintained a commitment through follow-up. Thus, they were highly motivated. They also tended to be members of higher socioeconomic groups. On the other hand, minorities were proportionally represented, an important consideration in these kinds of programs. Despite these limitations, the results are sufficiently supportive of the Small Group's potential to warrant further investigation. A major consideration is replication on a larger and different sample employing recruitment procedures that ensure wider variability in BSE behavior. This is especially true for frequency.

While subjects in this study averaged close to three BSE's per year, the majority performed more frequently. On the other hand levels of competency were generally inadequate. Note that the terms adequate/inadequate and frequent/infrequent are used here in an abstract sense only since studies to determine levels of competency needed to provide risk reductive benefits have not been performed.

Another consideration meriting attention concerns the structural components of the Small Group Program. While specially developed methods were included in the program design, it is not known which factor, or combination of factors was responsible for program effects. Needed to address this problem is a research design which systematically introduces each component while controlling for the effects of others (Greene, Figa, & Talamanca, 1974). Of particular importance is the number of sessions. Undoubtedly this three-day commitment discourages subject participation. Of importance then, is whether a reduction in program sessions, with a consequent loss of learning experiences, would attenuate the program's effects.

Another structural feature requiring attention is the role of the facilitator. In contrast to Individual Instructors, nurses trained as facilitators reported a lack of confidence in their small group skills. This is not surprising since facilitators not only had to learn new skills, but needed to refrain from using traditional patient education methods which while familiar were incompatible with

small group program goals. While it is not known whether further facilitator training would enhance program impact, it is an important question for future evaluation since training increases the cost of the intervention.

Theoretical Premises

The validity of the locus of control model to explain women's BSE behavior requires further study. Indeed the measurement of breast cancer locus of control has special importance in this regard. For example, further evidence of the scale's reliability and validity is needed. Although in general the data reported in this study suggest that expectancies regarding breast cancer locus of control are being tapped by the MBCLC scales, further refinement, using methods such as factor analysis are in order.

Investigation of the factor structure of the MBCLC scale may provide further support for the conceptualization of locus of control as a multidimensional construct (Bar-Zohar & Nehavi, 1978; Bloom, 1979; Collins, 1974; Levinson, 1973, 1974, 1975). It may also clarify the extent to which locus of control beliefs about breast cancer and breast self-examination can be represented by the same factor pattern. Additionally, interrelationships can be examined between the three locus of control domains: general, health, and breast cancer. Finally, the impact of response styles on scale scores, especially the tendency to respond extremely, can be assessed.

In addition to measurement issues, there should be further examination of the model's explanatory power. In view of the multiplicity of predictors as well as the problem of multicollinearity, analytic methods such as multiple regression/correlation would be especially appropriate (Cohen & Cohen, 1973). While causal relationships cannot be established, the invalidity of the model can at least be ruled out. It would also enable an exploration of some interesting questions raised by these data. For instance, although Internality did not predict BSE frequency it was positively and significantly associated with competency hence, the value of combining internality and competency jointly to predict frequency should be determined. Also of interest is the relationship between locus of control and women's subjective judgments of BSE skill. Other research has suggested that while individuals avoid activities they perceive as beyond their capabilities they are willing to perform those they believe are within their management repertoire (Bandura, 1977, 1982a, 1982b). Determining how women make judgments about the efficacy of their procedural skill may prove helpful in understanding how these judgments influence their BSE behavior as well as how they relate to their locus of control beliefs.

Also to be identified are mechanisms mediating program impact. Despite predictions, the Small Group Program did not uniquely affect participants' locus of control beliefs or confidence in the conduct of their self-examination perform-

ance. While non-significant findings were undoubtedly influenced by the methodological problems previously outlined (i.e. small n and restricted distribution), further assessment of mediating mechanisms is important in establishing the basis of program effects.

Finally, the relationship between program impact and individual differences needs to be considered. Since the small and skewed sample prevented an analysis of treatment effects according to locus of control dimensions, this study provides no information regarding the differential effectiveness of the three interventions as a function of differences in locus of control. As noted by Wallston and Wallston (1973), a potentially important utilization of locus of control is to provide interventions congruent with participants' belief orientation.

Implications for Breast Cancer Risk Reduction Interventions

This research has implications for interventions directed toward reducing the risk of breast cancer. It is important to note that there is some controversy over the issue of whether or not breast self-examination does, in fact, reduce women's risk for breast cancer (Moore, 1978). However, thus far there has not been a single study reported that has been appropriately designed to answer this question. As outlined earlier, studies have suggested that women practicing BSE do present with earlier stage breast cancer; but whether or not these lesions were found during self-

examination has not been determined. Of course, this question may be irrelevant since women trained to do BSE may be sufficiently sensitive to identify abnormalities during daily activities, such as bathing. Nonetheless, the question of BSE efficacy remains speculative until evidence generated by systematic research can be provided.

Also important to future investigations is the need to consider the role of competency in the conduct of a woman's BSE performance. Data presented here demonstrated that levels of competency were generally inadequate. An important question yet to be addressed is what combination of frequency and competency is needed to afford women protection from the hazard of advanced disease.

SIGNIFICANCE

Methods for educating women to practice breast self-examination have characteristically focused on transmitting information and technical knowledge relevant to procedure. In the present research the focus was shifted to psychological factors assumed to mediate a woman's response to BSE instructions. It provides an empiric test of an intervention designed to encourage in women a sense of personal control over breast cancer outcome and compares its effectiveness to traditional public health programs presently available. Grounded in theory and employing a classical randomized experimental design, a major contribution of this research is its potential as a model for future experiments in preventive health program evaluation.

Without knowing whether competent BSE procedures are being performed, the prudence of encouraging women to be early detection monitors cannot be effectively evaluated. This study was designed to assess the effectiveness of the newly developed method by measuring an actual BSE performance. Hence, it avoids previous reliance on personal testimony and indirect evidence as measures of procedural adequacy. Demonstrating the importance of competency as a predictor of BSE frequency, it not only establishes the critical role of competency training in early detection programs but provides measures and procedures for future efforts.

Finally, this research contributes to the body of knowledge concerned with the relationship between locus of control and health behavior. It provides important information about the determinants of BSE practice and provides support for the use of content specific measures to improve the prediction of behavior.

Appendix A_1

FINAL SCALE ITEMS

Breast Cancer Multidimensional Locus of Control Scale

Internal Subscale

Survey	Apriori Scale	Questionnaire	Final Scale	
6	I_1	Q-23	I_1	I do not believe that examining my breasts regularly can truly influence my health and welfare.
15	I_2	Q-27	I_2	If I examine my breasts regularly and a lump develops, I am likely to find it.
40	I_4	Q-35	I_3	If I were to get breast cancer, nothing I do could affect the outcome.
6	I_6	Q-43	I_4	One reason why breast cancer causes so many deaths is because women do not examine their own breasts regularly.
66	I_7	Q-45	I_5	I doubt that someone like me can do an effective breast self-examination.
71	I_8	Q-46	I_6	If I get breast cancer, I want to be the one to consider the choices available to me, rather than have others (for example doctors, family) make decisions for me.
76	I_9	Q-24	I_7	Doing my own breast examination is the best way for me to be sure that a breast lump is discovered at an early and treatable stage.
62	P_{10} I_{14}	Q-26	I_8	A familiarity with my breasts, which results from breast self-examination, would make me more likely to detect changes than a doctor or nurse.

Appendix A_2

FINAL SCALE ITEMS

Breast Cancer Multidimensional Locus of Control Scale

External-Powerful Other Subscale

Survey	Apriori Scale	JCP Questionnaire	Final Sub-Scale	
9	P_3	Q-21	P_1	If I were to get breast cancer, I would prefer that decisions concerning my care be made by others (for example, doctors, family) rather than by me.
27	P_5	Q-22	P_2	A breast examination is a difficult procedure and I prefer to have a doctor do it rather than myself.
42	P_6	Q-28	P_3	If I develop a breast lump, I'm sure a doctor would be able to find it, but I probably would not.
48	P_8	Q-31	P_4	The best way for me to be sure that breast cancer is detected is to rely on doctors because they know best.
65	P_{11}	Q-37	P_5	If I get breast cancer others (for example, doctors, family) will determine the outcome.
3	P_2	Q-3	P_6	No matter how well I am trained to examine my breasts, I'm not as likely to find a breast lump as a doctor or nurse.

Appendix A_3

FINAL SCALE ITEMS

Breast Cancer Multidimensional Locus of Control Scale

External-Chance Subscale

Survey	Apriori Scale	JCP Questionnaire	Final Subscale	
12	C_1	Q-25	C_1	If I should have breast cancer, unless I'm lucky, it's unlikely that anything can help.
29	C_3	Q-29	C_2	Examining my breasts is unnecessary because if it is meant to be, the cancer will be found anyway.
30	C_4	Q-32	C_3	If it is meant to be, I will die of breast cancer and nothing I do will prevent it.
32	C_5	Q-33	C_4	Since by the time I found something it's likely to be too late anyway, I don't need to examine my breasts for signs of cancer.
52	C_7	Q-34	C_5	When it comes to breast cancer, whatever is going to happen will happen, and there is not much I can do about it.
54	C_8	Q-39	C_6	If I find a breast lump, the end result is likely to be the same whether I trust to fate or see a doctor.
63	C_9	Q-41	C_7	If I get breast cancer, recovering is largely a matter of luck.
68	C_{10}	Q-42	C_8	Even if I am properly trained in breast self-examination discovering a breast lump would be largely a matter of luck.

(continued)

Appendix A_3, continued

Survey	Apriori Scale	JCP Questionnaire	Final Sub-Scale	
75	C_{11}	Q-44	C_9	If I discover a breast lump, what I'm likely to do is try to forget it is there and hope for the best.
86	C_{13}	Q-47	C_{10}	There are so many things that can happen to me it seems pointless to try to do something about any one thing like breast cancer.

Appendix C_1

POST-PROGRAM QUESTIONNAIRE

WOMEN'S HEALTH PROJECT
Center for Social Research
The City University of New York
Graduate Center

Fall/1981

ID_____

P R O G R A M E V A L U A T I O N

In June of 1981 you, along with other women interested in learning about how to protect their health, participated in one of three breast self-examination programs. We are now engaged in efforts to determine the effectiveness of these programs in meeting your needs. To be useful, this will require your thoughtful and honest input.

This questionnaire is intended to permit your input quickly and easily. From the results, we will be able to give you a sense of how some of your health needs are being met. Also, JC Penney will be able to develop further health programs to benefit the women in the organization.

Remember, it is important for you to give answers that reflect what you truly think--not what you believe we would like to hear.

The questionnaire is brief and should only take a few minutes to complete. Please be sure to answer all the questions. If you wish to comment on any questions or qualify your answers feel free to use the space in the margins. To insure that your responses remain both anonymous and confidential DO NOT WRITE YOUR NAME ON THIS QUESTIONNAIRE.

The "Women's Health Project," of which this questionnaire is a part, is supported by the American Cancer Society, Division of Cancer Control.

Appendix C_2

Section A

Q-1 Since participating in the Women's Health Project have you discussed breast self-examination with another woman, other than a doctor or nurse?

(Circle number of your answer)
1. No
2. Yes, a friend(s)
3. Yes, a relative(s)
4. Yes, a coworker(s)

Q-2 Before participating in the Women's Health Project had you taught another woman how to do a breast self-examination?

(You may circle more than one number)
1. No
2. Yes, a friend(s)
3. Yes, a relative(s)
4. Yes, a coworker(s)

Q-3 Since participating in the Women's Health Project, have you taught any women how to do a breast self-examination?

(You may circle more than one number)
1. No
2. Yes, a friend(s)
3. Yes, a relative(s)
4. Yes, a coworker(s)

Q-4 Since participating in the Women's Health Project, have you assisted in organizing any programs on breast self-examination?

(Circle number)
1. No
2. Yes.....please specify_____
_____
_____
_____

Q-5 With the assistance of our project staff would you be interested in developing a breast self-examination program for coworkers at JC Penney?

(Circle number)
1. No
2. Yes
3. Possibly, but I need more information

Appendix C_3

Q-6 At the present time do you feel you have the skill to do a competant breast self-examination?

(Circle number)
1. No
2. Yes
3. I'm not sure

Q-7 In the months listed below, please indicate whether or not you have done a breast self-examination this year.

		(Circle the number)	
1.	January	1. No	2. Yes
2.	February	1. No	2. Yes
3.	March	1. No	2. Yes
4.	April	1. No	2. Yes
5.	May	1. No	2. Yes
6.	June	1. No	2. Yes
7.	July	1. No	2. Yes
8.	August	1. No	2. Yes
9.	September	1. No	2. Yes
10.	October	1. No	2. Yes
11.	November	1. No	2. Yes
12.	December	1. No	2. Yes

Section B

Q-8 If it is detected early, what do you think are your chances that breast cancer can be cured?

(Circle number of your answer)
1. 10%-24%
2. 25%-39%
3. 40%-54%
4. 55%-69%
5. 70%-79%
6. 80%-99%
7. 100%

Q-9 In a group of 100 women, how many are likely to get breast cancer?

(Circle number)
1. Between 1 and 5
2. Between 6 and 10
3. Between 11 and 15
4. Between 16 and 20

Appendix C_4

Q-10 What percentage of breast lumps are found to be cancerous?

(Circle number)
1. 1% to 5%
2. 6% to 10%
3. 11% to 15%
4. 16% to 20%

Q-11 The likelihood, or risk, of developing breast cancer increases markedly after a woman passes which birthday?

(Circle number)
1. 20th
2. 30th
3. 40th
4. 50th
5. 60th
6. The likelihood does not increase with age

Q-12 According to medical studies, a woman is more likely to develop breast cancer if she has certain characteristics. Of the characteristics listed below, which are associated with a greater risk of breast cancer?

(You may circle more than one number)
1. She has never been married
2. Her mother has had breast cancer
3. She has fibrocystic (lumpy) breasts
4. Her aunt has had breast cancer
5. She has had a hysterectomy
6. She has a large body size
7. Her grandmother has had breast cancer
8. She has been hit in the breast
9. If she takes female hormones (estrogen) for menopause (change-of-life)
10. She has never had children
11. She takes birth control pills
12. She is past menopause (change-of-life)
13. Her first child was born after her 29th birthday
14. Her sister has had breast cancer

Q-13 Most breast lumps are found by:

(Circle number)
1. Doctors
2. Nurses
3. Women themselves

Appendix C_5

Q-14 As far as you know, how often should breast examinations be done?

(Circle number)
1. Once a week
2. Once a month
3. Once every six months
4. Once a year

Q-15 For a woman who is still having periods (before menopause or the change-of-life) when is the best time to do a breast self-examination?

(Circle number)
1. The first day of her period
2. The last day of her period
3. Ten days after her period begins
4. There is no best time

Q-16 For women who no longer have periods (after menopause or the change-of-life) when is the best time to do a breast self examination?

(Circle number)
1. The first day of the month
2. A different day each month
3. There is no best time

Q-17 Part of the breast self-examination procedure calls for a woman to inspect her breasts in front of a mirror. During this time, what kind of changes should she be looking for?

(Write as many different changes as you can in the space below)

_____
_____
_____
_____

Q-18 During a breast self-examination, what kinds of nipple changes should a woman be looking for?

(Write as many different changes as you can in the space below)

_____
_____
_____
_____

Appendix C_6

Q-19 When a woman palpates, or feels her breast during a breast self-examination, what kind of changes should she be feeling for?

(Write as many different changes as you can in the space below)

Q-20 The breast inspection in front of the mirror calls for different arm positions. What are they?

(Write your answer in the space below)

Section C

Each of the items in this next section asks your opinion on issues related to your health. Each item is followed by six possible responses:

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

For each item, circle the one response that best represents your feelings on the issue.

Please be sure that you answer each item and that you circle only one response for each item. When making your choice, do not be influenced by your previous answer.

Be sure to keep in mind that we are interested in knowing how YOU feel about these issues. Therefore, it is most important that you answer according to your own personal beliefs and not according to how you feel you should believe. Because everyone is different there are, of course, no right or wrong answers.

Appendix C_7

Q-21 IF I WERE TO GET BREAST CANCER, I WOULD PREFER THAT DECISIONS CONCERNING MY CARE BE MADE BY OTHERS (FOR EXAMPLE, DOCTORS, FAMILY) RATHER THAN BY ME.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-22 A BREAST EXAMINATION IS A DIFFICULT PROCEDURE AND I PREFER TO HAVE A DOCTOR DO IT RATHER THAN MYSELF.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-23 I DO NOT BELIEVE THAT EXAMINING MY BREASTS REGULARLY CAN TRULY INFLUENCE MY HEALTH AND WELFARE.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-24 DOING MY OWN BREAST EXAMINATIONS IS THE BEST WAY FOR ME TO BE SURE THAT A BREAST LUMP IS DISCOVERED AT AN EARLY AND TREATABLE STAGE.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-25 IF I SHOULD HAVE BREAST CANCER, UNLESS I'M LUCKY, IT'S UNLIKELY THAT ANYTHING CAN HELP.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-26 A FAMILIARITY WITH MY BREASTS, WHICH RESULTS FROM BREAST SELF-EXAMINATION, WOULD MAKE ME MORE LIKELY TO DETECT CHANGES THAN A DOCTOR OR NURSE.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-27 IF I EXAMINE MY BREASTS REGULARLY AND A LUMP DEVELOPS, I AM LIKELY TO FIND IT.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-28 IF I DEVELOP A BREAST LUMP, I'M SURE A DOCTOR WOULD BE ABLE TO FIND IT, BUT I PROBABLY WOULD NOT.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Appendix C_8

Q-29 EXAMINING MY OWN BREASTS IS UNNECESSARY BECAUSE IF IT IS MEANT TO BE, THE CANCER WILL BE FOUND ANYWAY.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-30 IF I DO NOT EXAMINE MY BREASTS REGULARLY, I INCREASE THE RISK THAT I WILL DIE OF BREAST CANCER.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-31 THE BEST WAY FOR ME TO BE SURE THAT BREAST CANCER IS DETECTED IS TO RELY ON DOCTORS BECAUSE THEY KNOW BEST.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-32 IF IT IS MEANT TO BE, I WILL DIE OF BREAST CANCER AND NOTHING I DO WILL PREVENT IT.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-33 SINCE BY THE TIME I FOUND SOMETHING IT'S LIKELY TO BE TOO LATE ANYWAY, I DON'T NEED TO EXAMINE MY BREASTS FOR SIGNS OF CANCER.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-34 WHEN IT COMES TO BREAST CANCER, WHATEVER IS GOING TO HAPPEN WILL HAPPEN, AND THERE IS NOT MUCH I CAN DO ABOUT IT.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-35 IF I WERE TO GET BREAST CANCER, NOTHING I DO COULD EFFECT THE OUTCOME.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-36 IF I AM PROPERLY TRAINED IN BREAST SELF-EXAMINATION, AND I DON'T FIND A BREAST LUMP, I CAN FEEL COMFORTABLE THAT NONE IS THERE.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Appendix C_9

Q-37 IF I GET BREAST CANCER OTHERS (FOR EXAMPLE, DOCTORS, FAMILY) WILL DETERMINE THE OUTCOME.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-38 NO MATTER HOW WELL I AM TRAINED TO EXAMINE MY BREASTS, I'M NOT AS LIKELY TO FIND A BREAST LUMP AS A DOCTOR OR NURSE.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-39 IF I FIND A BREAST LUMP, THE END RESULT IS LIKELY TO BE THE SAME WHETHER I TRUST TO FATE OR SEE A DOCTOR.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-40 ONLY MEDICALLY TRAINED PEOPLE, LIKE DOCTORS AND NURSES, CAN PERFORM A COMPETENT BREAST EXAMINATION AND WOMEN LIKE ME SHOULD NOT EVEN TRY.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-41 IF I GET BREAST CANCER, RECOVERING IS LARGELY A MATTER OF LUCK.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-42 EVEN IF I AM PROPERLY TRAINED IN BREAST SELF-EXAMINATION DISCOVERING A LUMP WOULD BE LARGELY A MATTER OF LUCK.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-43 ONE REASON WHY BREAST CANCER CAUSES SO MANY DEATHS IS BECAUSE WOMEN DO NOT EXAMINE THEIR OWN BREASTS REGULARLY.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-44 IF I DISCOVER A BREAST LUMP, WHAT I'M LIKELY TO DO IS TRY TO FORGET IT IS THERE AND HOPE FOR THE BEST.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Appendix C_{10}

Q-45 I DOUBT THAT SOMEONE LIKE ME CAN DO AN EFFECTIVE BREAST SELF-EXAMINATION.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-46 IF I GET BREAST CANCER, I WANT TO BE THE ONE TO CONSIDER THE CHOICES AVAILABLE TO ME, RATHER THAN HAVE OTHERS (FOR EXAMPLE DOCTORS, FAMILY) MAKE DECISIONS FOR ME.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Q-47 THERE ARE SO MANY THINGS THAT CAN HAPPEN TO ME IT SEEMS POINTLESS TO TRY TO DO SOMETHING ABOUT ANY ONE THING LIKE BREAST CANCER.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Appendix C_{11}

Q-48 Are there any comments you would like to make about the Women's Health Project in general?

Q-49 Are there any comments you would like to make about the particular instructional session you attended?

Q-50 Do you have any comments which might help us in any future efforts to address the health needs of working women?

Appendix D

BSE TECHNIQUE RATING SCALE

Pre [ ] Post [ ]
ID No. _____

I. Mirror Inspection [ ]

A. Arms at side [ ]
1. Facing mirror [ ]
2. Sideways [ ]

B. Arms raised above head [ ]
1. Facing mirror [ ]
2. Sideways

C. Hands on hips or palms pressed together [ ]

II. Palpation [ ]

A. Breast [ ]
1. Appropriate arm folded behind hand [ ]
2. Uses appropriate hand [ ]
3. Uses fatty pads of fingers [ ]
4. Uses firm pressure with fingers [ ]
5. Moves hand in small circular motion [ ]
6. Covers entire breast area including nipple [ ]
7. Milks nipple [ ]

IV. Positions: Sitting or Standing [ ]

Lying down [ ]

A. Examination of left breast [ ]
1. Pillow under left shoulder [ ]
2. Left arm folded behind head [ ]

B. Examination of right breast [ ]
1. Pillow under right shoulder [ ]
2. Right arm folded behind head [ ]

Appendix E_1

BSE PROGRAM CURRICULUM

Large Group/Lecture Program

To enable a comparison between the large group/lecture program and the two types of programs that follow, a curriculum, based on the aforementioned ACS guidelines was developed and is provided below. Procedures recommended by ACS, but not included in this study's programs, are indicated with an asterisk.

Curriculum for the Large Group/Lecture Program

General Program Objectives

To teach participants the technique of breast self-examination.

To motivate participants to practice breast self-exmination routinely.

General Program Methods

Lecture

Over-the-clothing demonstration and practice*

BSE film

Question-and-answer and discussion period

BSE pamphlets

General Participant Outcome

Participants will learn BSE Procedure

Participants will practice BSE routinely

Appendix E_1, continued

The Program Session

(One 45-60 Minute Session)

Objectives:

1. To use methods suggested by ACS to provide BSE instruction to women in a group setting.
   a. To provide participants with information about breast cancer emphasizing the risk reductive benefits of early detection.
   b. To provide participants with information on BSE techniques and, assist their learning of the procedure.

Key Points:

1. Women are at risk for developing breast cancer.
2. A key to reducing the risk of cancer is early detection.
3. BSE is a simple but crucial early detection method to use between physician examinations.
4. Determinants of non-BSE practice are:
   a. irrational fear of cancer
   b. lack of confidence in practicing BSE
   c. lack of confidence in ability to discover a breast abnormality

Appendix E_1, continued

5. Each woman can become expert at examining her own breasts and detecting changes from the norm.

Methods: ACS standard procedures including: lecture, BSE film, over-the-clothing demonstration and practice,* question-and-answer and discussion period. (A breast model and personal commitment cards* are optional.)

Appendix E_2

BSE PROGRAM CURRICULUM

Individual Instruction Program

The following curriculum provides an outline of content and methods specific to the individual instruction approach.

Curriculum for the Individual Instruction Program

General Program Objectives

To teach participants the technique of breast self-examination.

To motivate participants to practice breast self-examination routinely.

General Program Methods

Brief lecture

Over-the-clothing demonstration and practice

Questions and answers

General Participant Outcome

Participants will learn BSE procedure

Participants will practice BSE routinely

Appendix E_2, continued

The Program Session

(One 15-20 Minute Session)

Objectives:

1. To provide BSE instruction with methods typically used in a physician's office.
   a. To provide participants with information about breast cancer emphasizing the risk reductive benefits of early detection.
   b. To provide participants with information on BSE techniques and assist their learning of the procedure.

Key Points:

1. Women are at risk for developing breast cancer.
2. A key to reducing the risk of cancer is early detection.
3. BSE is a simple but crucial early detection method to use between physician examinations.
4. Each woman can become expert at examining her own breasts and detecting changes from the norm.

Methods: Brief lecture, BSE demonstration by health educator (over-her-clothing) and return demonstration by participant (either over-

Appendix E_2, continued

her-clothing or without clothing according to participant's choice).

Appendix E_3

BSE PROGRAM CURRICULUM

Small Group Program

The curriculum outlined below serves as a kind of syllabus for the small group facilitator. Each session focuses on a variation of a common theme; to understand and overcome factors that discourage routine BSE practice. Assuming that learning is enhanced by repeated confrontation with the same principle, each session develops this theme from a somewhat different direction. While Session One focuses on participant's ambivalence toward BSE, Session Two considers the genesis of this ambivalence. Session Three, then, concentrates on enabling participants to apply their learning to alternative and more healthful modes of behaviors. Adherence to the curriculum is meant to be flexible in the sense that its content is coordinated with the group's readiness and particular needs. Thus, while Session Two may focus on the development of attitudes towards women's bodies, if the process and content of Session One suggests its relevance earlier, the topic may be introduced then.

Appendix E_3, continued

Curriculum for the Small Group Program

General Program Objectives

To teach participants the technique of breast self-examination.

To motivate participants to practice breast self-examination routinely.

To enable participants to perceive a contingency relationship between their personal behavior and their health outcome regarding breast cancer (i.e. Breast Cancer Internal Locus of Control).

To enable participants to perform a competent breast self-examination.

To enable participants to perceive their BSE performance as competent.

General Program Methods

Focused group discussion

Experiential learning strategies, i.e. role playing, at-home exercises

Film (Breast Self-Examination: A Plan for Survival)

Over-the-clothing BSE demonstration and practice

Spenco breast model

General Participant Outcome

Participants will learn BSE procedure.

Participants will be competent in their BSE performance.

Appendix E_3, continued

Participants will become more internal and less external in their breast cancer locus of control orientation.

Participants will practice BSE routinely.

The Program Sessions

Session I - Thursday

(One 50-minute session)

Objectives:

1. To introduce program format including agenda and respective roles of nurse and participant.
2. To encourage members' active participation in group process.
3. To enable participants' understanding of risk reductive benefits in breast cancer early detection and the contributing role of routine BSE practice.
4. To introduce participants to the standard procedure for breast self-examination.
5. To facilitate opportunities for group members to teach and learn from each other information relevant to breast cancer and BSE.

Appendix E_3, continued

6. To enable participants to perceive that the practice of routine BSE requires an understanding beyond procedural skills.
7. To assist participants in confronting ambivalence toward BSE practice.
8. To motivate group members toward working together to overcome BSE barriers.

Key Points:

1. All women are at risk for developing breast cancer.
2. A key to reducing the risk of breast cancer is early detection.
3. BSE is a simple but crucial early detection method to use between physician examinations.
4. Each woman can become expert at examining her own breasts and detecting changes from the norm.
5. Women can protect their health by working together to understand and overcome barriers to BSE practice.

Methods: Focused group discussion, film, over-the-clothing demonstration and practice with participants performing as an instructor and nurse providing assistance when needed.

Appendix E_3, continued

Discussion Questions:

1. Why do you think you decided to come to the workshop and others did not?
2. Why do you think women like yourself don't practice BSE?
3. What kind of information do you already have about breast cancer (i.e. incidence, etiology, age/risk ratio, diagnostic procedures, treatment)?
4. If your child, or someone else you cared about, required a brief monthly examination would finding the time or remembering to do it be difficult? If you weren't sure about how to do the procedure would you just not do it? In terms of priorities and their families, where do women put themselves? In other words, in your family whose needs come first and whose needs come last?
5. What do you think makes this program different from other BSE programs?

At-Home Exercises:

1. Practice BSE at home without your clothes on.
2. Spend some time thinking about today's experience and be prepared to share

Appendix E_3, continued

your thoughts with the group tomorrow.

3. Discuss some of the ideas we talked about today with another woman and be prepared to share your experience with the group tomorrow.

Expected Participant Outcome:

Participants will demonstrate:

1. An understanding of program format including facilitator and group member roles.
2. An understanding of the importance of detecting breast cancer early.
3. An understanding of the rationale for regular BSE practice.
4. A beginning competency in BSE skills.
5. An understanding of the need to go beyond procedural skill acquisition in the BSE education program.
6. A developing sense of group cohesiveness and member identification.
7. A commitment toward program goals.

Appendix E_3, continued

Session II - Friday

(One 50 minute session)

Objectives:

1. To enable participants to explore the relationship between social, psychological and cultural events unique to women and BSE practice.
2. To provide a supportive atmosphere where values and attitudes discouraging BSE practice can be evaluated and new attitudes and values, encouraging BSE practice, may be learned.
3. To provide a BSE review and practice experience that enhances participants' competency in their procedural skills objectively and subjectively.

Key Points:

1. Socialization experiences may influence women's attitudes toward their body and ultimately their health.
2. Expertise in BSE requires practice.

Methods: Focused group discussion, role playing, over-the-clothing practice with participants sharing BSE instructor role and nurse assisting if necessary.

Appendix E_3, continued

Discussion Questions:

1. Do you have any thoughts about yesterday's experience? Did you get a chance to talk with others about it?
2. Did you do a BSE at home? How comfortable were you?
3. How do women come to feel the way they do about their bodies?
   - When you were a young child, how did others respond to you if you touched your pubic area? As you got older, what were your thoughts and feelings about masturbation?
   - How did you feel when you first started developing, menstruating? How did your parents, siblings and friends respond?
   - What kind of attitude do men and women have toward the female body?
   - How do you feel when you go to the doctor? What kinds of nonverbal messages are sent in these interactions?
4. How might the things we've discussed affect our BSE behavior?

Appendix E_3, continued

At-Home Exercises:

1. Practice procedure once each day over the weekend.
2. Discuss ideas raised in the workshop with another woman and a man.
3. Teach BSE to another woman.

Participant Outcome:

1. An understanding of the role of social forces in influencing personal BSE behavior personally and for women in general.
2. Increasing competence in BSE skill.
3. Increasing confidence in ability to perform a competent BSE.
4. An attenuation of vulnerability regarding breast cancer.
5. An increasing group cohesiveness, identification, and willingness to teach and learn from each other.

Session III - Monday

(One 50 minute session)

Objectives:

1. To explore the impact of the workshop experience on participants' attitudes and behavior.

2. To build upon previous two sessions.
3. To consolidate and reinforce learning by integrating the experiences of the intervening weekend.

Key Points:

1. Women can become expert in detecting crucial changes in their breasts and thereby protect their health.
2. Women are responsible for their own health care.
3. Women can help other women to learn the skills and develop the understanding needed to protect their health.

Methods: Focused group discussion, role playing, over-the-clothing BSE practice with participants sharing instructor role and nurse assisting if necessary, Spenco breast model.

Discussion Questions:

1. How did others respond to your BSE discussion and teaching efforts? How does your weekend experience fit in with the workshop?
2. How do you feel about your workshop experience?
3. How confident are you in your ability to do BSE?
4. What are some of the ways you can continue to promote BSE education?

Appendix F

SMALL GROUP PROGRAM: ILLUSTRATIVE SUMMARY OF A FIRST SESSION

While the above curriculum does provide some understanding of the interaction between content and method, it does not truly capture the essence of the small group approach, that is, the group process itself. To facilitate its illustration, a typescript summary of a small group program session is provided below. This summary represents a composite of the first session of several different small group programs held during the piloting phase of program development. To highlight the interaction between program objectives and methods, interpretive commentaries are included.

Session I - Composite Summary

At its onset, the workshop atmosphere is characterized by the uncertainty, anxiety and anticipation typical of novel situations and probably enhanced, in this case, by the topic. The group starts out with an attitude or expectation that they will be given something. To lessen anxiety, structure is clearly needed. And, while the facilitator does provide structure, from the very beginning she does so in a way that challenges the group's traditional conception of health educator.

As each participant entered the room, the nurse/facilitator introduced herself and provided the participant

with a name tag. (To de-emphasize status differences between the nurse and group members and encourage a sense of informality, only first names are used unless otherwise requested.) Out of the 10 women scheduled for the session, five attended.

The program was referred to as the "Women's Health Workshop." This served to emphasize the active participatory role of the group members as well as place the issue of BSE within the larger and more general context of women's health. In clarifying participants' roles, the facilitator emphasized members' responsibility toward realizing workshop goals. In outlining her role as facilitator, the nurse de-emphasized the traditional perspective of nurse as teacher/expert, encouraging participants to begin perceiving themselves as potential experts, on their own bodies.

NURSE: "I think we can begin now. I'd like to welcome everyone. My name is Linda Smith and I'm with the Women's Health Project. During the time our workshop meets, my job is to be a facilitator. A facilitator is the person that helps a group work toward its goals. One of the things I'll do is help you learn how to do a breast self-examination. Now, you don't have to be a nurse to be a facilitator for this kind of workshop. In fact after completing this experience, some participants decide to continue their interest in women's

health issues by organizing other informal workshops like this one, with family members, coworkers, friends, clubs. . . .

We'll be meeting three times: today, tomorrow and Monday. A frequently asked question is why do we need three sessions; can't we learn what we need to know in one meeting? I'd like to save that issue and come back to it at the end of today's session. By then we'll have a somewhat wider perspective on how the problem of breast self-examination fits in with the rest of our lives as women, and why we need three days."

As a means of breaking the ice, encouraging active participation and enabling participants to become acquainted, the facilitator introduced the "Identification of Workshop Goals" exercise.

NURSE: "Invitations to Women's Health Program were sent to all women employees and while many women, such as yourself, chose to participate, many others did not. As a way of getting to know each other, as well as getting a handle on why it is that most women don't examine their breasts regularly, let's go around the table so that each of you can introduce yourself. Say a little something about yourself and at the same time, share with the

group why you decided to come to the workshop and why you think others did not."

During these introductions the nurse, using a blackboard, developed two columns. In one column participants' reasons for coming to the workshop were listed. Listed in the second column were participants' beliefs regarding why others chose not to come. Placed on top of the appropriate columns were the headings "Goals" and "Barriers."

Reasons for coming to the workshop included: "To learn to do a BSE"; "I think it's important"; "I was curious." Reasons cited for not coming were: "Women are afraid"; "They don't want to give up a lunch hour"; "It's easier to be ignorant"; and, "It's depressing to hear about cancer." Such responses are representative of reasons typically offered in this exercise. Although, on occasion, a participant will express surprise at the program topic, deny previous knowledge of the agenda and, indicate confusion as to why she decided to come (i.e. "I didn't know this was going to be about breast cancer, I don't think I would have come if I did").

At this point the nurse began the process of enabling participants to confront their ambivalence regarding BSE. To demonstrate that despite their rationalization of lack of knowledge they already have considerable information, the nurse encouraged participants to talk about their previous BSE learning experiences.

NURSE: "It sounds like what you're saying is that for some women, like those that chose not to come today, the issue of BSE is either not so important or makes them uncomfortable and their way of handling the problem is to ignore it. On the other hand, you folks have decided to do something about it. Judging by the goals you've identified, your major objective is to learn how to do a BSE. It would be helpful to get a sense of what everyone already knows about it. How many women have had some previous instruction in BSE? . . . What kinds of articles have you read? . . . Have you seen anything on TV?"

Similar to participants in other groups, these women reported that they had either received personal instruction and/or read articles describing the technique. The nurse encouraged participants to elaborate on these experiences by asking them to describe to the group what they've been taught, encouraging them to comment on each other's information and experiences in reference to their own. The discussion was conducted in an easy-going and relaxed manner. When a question was directed specifically to the nurse she re-directed it back to the group, offering comments only if participants were unable to provide the requested information. Conducted in this way, the group discussion served as a vehicle for fostering group cohesion and member identification.

After highlighting the similarities between experiences the facilitator began to gently challenge participants' rationalizations of non-practice.

NURSE: "Something is not quite clear here. Most of you have quite a bit of information about BSE, including how to do it. Yet, most of you don't do it regularly. Why do you suppose that is?"

PARTICIPANTS: Participant One: I don't have time. When you're working and have a family it's hard to find the time." Participant Two agreed with her. Participant Three stated "I'm not really sure about how it's done."

NURSE: "How long does it take each of you to put your makeup on and fix your hair in the morning?"

PARTICIPANTS: Chorus of responses indicate between 10 to 30 minutes is allotted each day for makeup and hair.

NURSE: "So what you're saying is you have from 10 to 30 minutes a day to spend on making yourself more attractive but it's hard to find 10 minutes a month to save your life. Hmmm, what do you think about that?"

PARTICIPANTS: Participant: "Well, I'm not sure about how it should be done. I mean, I read an article but I'm never sure if what I'm doing is right."

NURSE: "O.K.: How many of you have children? [In this session all the participants acknowledged having children.] Say you heard or read an article that said that cancer of the knee was the second major cause of death for children. However, if found early, children have a 90% chance of surviving with a normal life expectancy. Furthermore, you heard that there was a simple ten minute monthly procedure that any parent could learn to do that would improve your child's chances of early detection. What would you do?"

PARTICIPANTS: "I'd learn how to do it." (Chorus of agreement.)

NURSE: "How?"

PARTICIPANTS: "Read up on it." "Ask my doctor."

NURSE: "O.K. You read an article explaining the procedure and your doctor showed you how to do it, but, you still weren't sure you had it right. What then?"

PARTICIPANTS: "I'd march into the doctor's office and tell him to teach me how to do it until I got it right."

NURSE: "Interesting; so how come no one marched into her doctor's office and demanded that he teach her how to do a BSE until she got it right?"

PARTICI-
PANTS: Chorus of laughter, smiling and nodding.

NURSE: "Well, one thing you might want to think about is in their list of priorities where do women place their personal health needs? Clearly we take care of our children, husbands and parents. But, what about ourselves? We'll talk more about that tomorrow but for today let's get back to the issue of BSE which seems to be somewhat of a paradox. There's this disease, breast cancer, for which everyone in this room is at risk. If it's found early we have a 90% chance of being cured. If it's found late, our chances are considerably less. So . . . early detection is the key to continued health. Now here's the paradox. On the one hand, there's an early detection method available. It costs nothing, takes very little time, and it's easy to do. Most women know about it, some have been taught how to do it. But, and here's the paradox, most women don't do it.

So ladies . . . I can teach you all how to do a self-examination, and I will. And, after completing this three day workshop each of you will be experts on how your breasts normally look and feel. Furthermore, you'll be competent enough to teach others how to do it. But, that doesn't mean you're actually going to continue to do it monthly.

> Learning the skills is the easy part; coming to grips with what interferes with using these skills is harder. [Approaching the blackboard, the nurse circles the term "Barriers."] That's why we need three days.
>
> O.K., let's begin working on breast self-examination skills. We'll watch a film and then over-our-clothing practice it on ourselves."

At the point in which the nurse introduced the idea of a film, the group had become considerably more relaxed. The attitude of "I'm just going to sit back and see what this nurse is going to do" had evolved into "I, too, have something to offer to the group." This attitude change was demonstrated non-verbally as well as verbally. While in the beginning participants were sitting back in their seats with their arms folded, facing the nurse, participants (4 out of 5) were now leaning forward and looking toward each other. (It should be noted that groups vary in the time it takes to become a cohesive unit. While for some it occurs in the first session, others take longer and still others never seem to really click.)

Although more relaxed, discussion had brought participants' fears to the fore. Continuing the discussion or ending the session at this point could cause members to leave feeling highly vulnerable to the threat of breast cancer. Hence, BSE instruction, introduced as an easily

learned defense against breast cancer, was initiated. This enabled participants to conclude the workshop with a beginning sense of competency and personal control.

Following the participants' comments on the film, the nurse introduced Session One's BSE learning strategy.

NURSE: "Let's go around the room, so that each of you gets a chance to be an instructor. Mary, would you mind starting us off by telling us, and demonstrating over-your-clothing, how we should begin a self-examination? If anyone disagrees or wants to add something, speak right up and of course we'll all practice along as Mary reviews the procedure."

Each person, in turn, had a chance to be the instructor. When something was left out, the facilitator encouraged other members to assist with the teaching (i.e. "Does everyone agree with what Carol is saying? Besides those that Mary mentioned, are there any other changes we should look for during inspection?").

Similar to other groups, participants had many questions during this first over-the-clothing practice. Upon hearing everyone else's questions they appeared to feel reassured that they were not the only ones new at this. Humor, used judiciously by the nurse and ultimately by participants themselves, helped to attenuate tension and enhanced a sense of comraderie. Indeed, Session One ended on a highly positive note.

Appendix G

NURSE TRAINING PROGRAM: AN OVERVIEW AND SUMMARY

Unit I: An Introduction and Overview

This unit provided a background for nurses unfamiliar with the Center for Social Research, and social research in general. Functions of the Center and its staff were outlined. Representative research projects were presented and briefly discussed. Nurses were encouraged to discuss their own professional interests and the ways in which their interests related to the present study.

Following this introduction an overview of the literature relevant to the problem of breast cancer was provided. The BSE project was introduced as "an effort to evaluate the effectiveness of BSE educational programs in occupational settings." While this was in fact true, it was felt that this explanation did not compromise the validity of the research since specific study hypotheses and predictions were not revealed. And, while nurses expressed an interest in the nature of the study, all had either had previous experience in research or would in the near future and were aware of the need for experimenter blindness. To meet their intellectual needs and professional curiosity, nurses were told that they would: (a) receive the final report of the study which would include predictions, findings and theoretical notions; and (b) be informed of any future presentations of the work.

Unit II: The Breast in Health and Disease

This unit was presented by a physician consultant. Its purpose was to provide all nurses with an equal baseline of knowledge. While the information was necessary for nurses providing instruction it was clearly not directly relevant to evaluators. However, recognizing that as professionals working on a breast self-examination research project, evaluators were likely to feel more comfortable having this background than not, it was considered appropriate to their professional needs and hence they were included in this session.

Unit III: Principles of BSE Procedure

Presented by the physician consultant, this unit instructed nurses in BSE procedure as prescribed by the American Cancer Society. While most nurses were already familiar with the procedure, instruction was designed to provide uniformity in information. Following a film (the same film shown to participants in the BSE programs) the physician discussed comments typically offered by women initially learning BSE and answered questions raised by the nurse participants.

Unit IV: Methods for BSE Evaluators

Overview. This unit was divided into two sessions. The overview provided an introduction to the field site and was designed to enable evaluators to understand the expectations subjects would have when they presented for data

collection. The nature of the collaboration between Company X and the Center for Social Research was outlined and procedures for subject recruitment were explained. Through role-playing, nurses were provided with an opportunity to perform the evaluator role and encouraged to practice at home prior to their practicum session.

Practicum. This session took place in the employee health center of Company X. Following an orientation to the physical environment and personnel, evaluators practiced data collection procedures. Intra-rater reliability data for BSE competency ratings were collected at this time.

Unit V: Methods for Individual Instruction

Overview. This unit was divided into two sessions. The first session provided an overview of methods to be used in individual instruction and an opportunity to practice. Instructors were encouraged to practice procedures at home.

Practicum. This session took place at the field site. Instructors were oriented to the environmental setting including personnel. Following this orientation, instructors, using role playing techniques, practiced individual instructional methods.

Unit VI: Small Group Methods

Overview. As with other units, this unit is divided into two sessions. In the first session small group methods were introduced and differences between the facilitator role and the traditional role of nurses as health educators were

emphasized. Using the small group program curriculum, representative examples from piloted workshop sessions were used to contrast and compare the two approaches.

Practicum. From Table 6 it can be seen that small group instructors received twice the hours of training than that of individual instructors. This extra time was spent in practice small group sessions.

Most nurses, including those engaged for this study, had previous and extensive experience in individual patient education methods. In contrast, training in small group methods was not typical. Since a reasonable degree of facilitator skill requires considerable practice, opportunities to develop small group skills were needed. Thus, each nurse conducted three small group programs for administrative employees at the Graduate Center. Program sessions were tape recorded. Following each session, the author and the instructor listened to the tapes with the author providing comments and additional instruction as indicated.

Following this training period, small group nurses reported feeling unsure about their role, in contrast to Individual Instructors who reported feeling quite confident. This suggests that future programs should include further training opportunities in which nurses can both develop and practice those skills needed to effectively facilitate groups.

REFERENCE NOTES

1. Bard, M., & Ross, T. Final Report. American Cancer Society, Cancer Control Grant.

2. Ross, T., Bard, M., & Contrada, R. Breast cancer and locus of control: A content-specific measure. Manuscript in progress.

3. American Cancer Society. Teaching breast self-examination, 74-24M-2/28-No. 2015.

REFERENCES

Ajzen, I., & Fishbein, M. Attitude-behavior relations: A theoretical analysis and review of empirical research. Psychological Bulletin, 1977, 84, 888-918.

American Cancer Society. Cancer facts and figures. 1981.

Antze, P. The role of ideologies in peer psychotherapy organizations: Some theoretical considerations and three case studies. Journal of Applied Behavioral Science, 1976, 12, 323-346.

Averill, J. Personal control over aversive stimuli and its relationship to stress. Psychological Bulletin, 1973, 80, 286-303.

Balch, P., & Ross, A. W. Predicting success in weight reduction as a function of locus of control: A unidimensional and multidimensional approach. Journal of Consulting and Clinical Psychology, 1975, 43, 119.

Bandura, A. Self-efficacy: Toward a unifying theory of behavior change. Psychological Review, 1977, 84, 191-215.

Bandura, A. Self-efficacy mechanism in human agency. American Psychologist, 1982, 37(2), 122-147.

Bard, M., & Sutherland, A. The psychological impact of cancer and its treatment: IV. Adaptation to radical mastectomy. Cancer, July-August, 1955, 8(4), 656-672.

Baron, R. M., et al. Interaction of locus of control and type of performance feedback. Journal of Personality and Social Psychology, 1974, 30(2), 285-293.

Bar-Zohar, Y., & Nehari, M. Conceptual structure of the multidimensionality of locus of control. Psychological Reports, 1978, 42, 363-369.

Bem, S. L. The measurement of psychological androgyny. Journal of Consulting and Clinical Psychology, 1974, 42, 155-162.

Bloom, J. Psychosocial measurement and specific hypotheses: A research note. Journal of Consulting and Clinical Psychology, 1979, 47(3), 637-639.

Bond, B. A study in health education methods. International Journal of Health Education Methods, 1958, 141-146.

Bowles, E. Self-help groups: Perspectives and directions. New York: C.A.S.E., City University of New York, 1978.

Broverman, I., Broverman, D., Clarkson, F., Rosenkrantz, P., & Vogel, S. Sex role stereotypes and clinical judgments of mental health. Journal of Consulting and Clinical Psychology, 1970, 34(1), 1-7.

Coan, R. W. Personality variables associated with cigarette smoking. Journal of Personality and Social Psychology, 1973, 26, 86-104.

Cohen, J., & Cohen, P. Applied multiple regression/correlation analysis for the behavioral science. Hillsdale, N.J.: Lawrence Erlbaum Associates, 1975.

Collins, B. E. Four components of the Rotter I-E scale: Belief in a difficult world, a just world, a predictable world and a politically responsive world. Journal of Personality and Social Psychology, 1974, 29, 381-391.

Crossen, K. E., Nexxel, A. E., Engstrom, P. F., & Grover, P. L. Health education in preventive oncology: A study of factors influencing practice of breast self-examination. Proceedings of the Second Annual American Society of Preventive Oncology, 1978.

Day, L. A., & Eichorn, R. The utilization of health services: Indices and correlates: A research bibliography. DHEW, 1972, Publication No. (HSM) 73-30003.

Dreifus, C. (Ed.). Seizing our bodies. New York: Vintage Books, 1978.

Feldman, J. G., Carter, A., Nicastri, A., & Hosat, S. Breast self-examination, relationship to stage of breast cancer at diagnosis. Cancer, 1981, 47, 2740-2745.

Foster, R., Long, S., Costanza, M., Worden, J., Haines, C., & Yates, J. Breast self-examination practices and breast cancer. The New England Journal of Medicine, August 10, 1978, 299(6), 265-270.

Gallup Organization. Women's attitudes regarding breast cancer. Princeton, N.J.: The Gallup Organization, Inc., 1973.

Gartner, A., & Reissman, F. Self-help in human services. San Francisco, Calf.: Jossey-Bass, 1977.

Green, L. W., & Figa-Talomanca, I. Suggested designs for evaluation of patient education programs. Health Education Monologue, Spring 1974, 2, 54-171.

Greenwald, P., Rasca, P., Lawrence, C., Horton, J., McGarrah, R., Gabriele, T., & Carlton, K. Effect of breast self-examination and routine physician examinations on breast cancer mortality. The New England Journal of Medicine, August 10, 1978, 299(6), 271-273.

Hamilton, D. Personality attributes associated with extreme response style. Psychological Bulletin, 1968, 69(3), 192-203.

Hobbs, P. Evaluation of a teaching program of breast self-examination. International Journal of Health Education, 1971, 14, 189-195.

James, W. H., Woodruff, A. B., & Werner, W. Effect of internal and external control upon changes in smoking behavior. Journal of Consulting Psychology, 1965, 29, 184-186.

Janis, I. L., & King, B. T. The influence of role playing on opinion change. Journal of Abnormal and Social Psychology, 1954, 49, 211-218.

Kaiser, B., & Kaiser, I. The challenge of the women's movement to American gynecology. American Journal of Obstetrics and Gynecology, 1974, 120(5), 652-661.

Kaplan, G. D., & Kowles, A. Health locus of control and health value in the prediction of smoking reduction. Health Education Monographs, Spring 1978, 2(6), 129-137.

Katz, A., & Bender, E. The strength in us: Self-help groups in the modern world. New York: New Viewpoints, 1976.

Keller, K. Self-examination for breast cancer. Today's Clinician, May 1978.

Kelly, P. T. Breast self-examination: Who does them and why. Journal of Behavioral Medicine, 1979, 2, 31-38.

Lazarus, R. Psychological stress and the coping process. New York: McGraw-Hill, 1966.

Leis, H. Diseases of the breast. In Family practice annual. Missouri: American Academy of Family Physicians, 1966.

Levinson, H. Multidimensional locus of control in psychiatric patients. Journal of Consulting and Clinical Psychology, 1973, 41, 397-404.

Levinson, H. Activism and powerful others: Distinctions within the concept of internal-external control. Journal of Personality Assessment, 1974, 38, 377-383.

Levinson, H. Multidimensional locus of control in prison inmates. Journal of Applied Social Psychology, 1975, 5, 342-347.

Lewin, K. Group decision and social change. In T. M. Newcomb & E. L. Hartly (Eds.), Readings in Social Psychology. New York: Holt, Rinehart & Winston, 1947.

Lewis, F. M., Morisky, D. E., & Flynn, B. S. A test of construct validity of health locus of control: Effects of self-reported compliance for hypertensive patients. Health Education Monographs, 1978, 6, 138-148.

Lieberman, S. A basic study of public attitudes toward cancer and cancer tests. New York: Lieberman Research, Inc., 1979.

Lorber, J. Good patients and problem patients: Conformity and deviance in a general hospital. Journal of Health and Social Behavior, 1975, 16, 213-225.

Lowery, B. J., & DuCette, J. P. Disease-related learning and disease control in diabetics as a function of locus of control. Nursing Research, 1976, 25, 358-362.

MacDonald, A. P. Internal-external locus of control and the practice of birth control. Psychological Reports, 1970, 27, 206.

Mann, L., & Janis, I. L. A follow-up study of the long term effects of emotional role playing. Journal of Personality and Social Psychology, 1968, 8, 339-342.

Margery, C. J., Todd, P. B., & Blizard, P. J. Psychosocial factors influencing delay and breast self-examination in women with symptoms of breast cancer. Social Science Medicine, 1977, 11, 229-232.

Mlott, S. R., & Mlott, Y. D. Dogmatism and locus of control in individuals who smoke, stopped smoking, and never. Journal of Community Psychology, 1975, 3, 53-57.

Moore, F. D. Breast self-examination (editorial). New England Journal of Medicine, 1978, 299, 304-305.

National Cancer Institute. Breast cancer: A measure of progress in public understanding (NIH Publication No. 81-2291, U.S. Department of Health and Human Services, Public Health Service, National Institute of Health). 1980.

Rappaport, J. Community psychology. New York: Holt, Rinehart & Winston, 1977.

Riessman, F. The helper therapy principle. Social Work, 1965, 10, 27-32.

Rossi, P. H., Freeman, H., & Wright, S. Evaluation: A systematic approach. New York: Sage Publications, 1979.

Rotter, J. B. Social learning and clinical psychology. Englewood Cliffs, N.J.: Prentice-Hall, 1954.

Rotter, J. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 1966, 80(1, Whole No. 609).

Saltzer, E. B. Locus of control and the intention to lose weight. Health Education Monographs, Spring 1978, 2(6), 119-125.

Seeman, M., & Evans, J. W. Alienation and learning in a hospital setting. American Sociological Review, 1962, 27, 772-783.

Steffy, R. A., Meichenbaum, D., & Best, J. A. Aversive and cognitive factors in the modification of smoking behavior. Behavior Research and Therapy, 1970, 8, 115-125.

Stillman, M. Women's health beliefs about breast cancer and breast self-examination. Nursing Research, 1977, 26(2), 121-126.

Strahan, R., & Gerbasi, K. C. Short, homogeneous versions of the Marlowe-Cerone social desirability scale. Journal of Clinical Psychology, 1978, 46, 1192-1211.

Straits, B., & Sechrest, L. Further support of some findings about the characteristics of smokers and non-smokers. Journal of Consulting Psychology, 1963, 27, 282.

Tagliacozzo, D. L., & Mauksch, H. O. The patient's view of the patient's role. In E. G. Jaco (Ed.), Patients, physicians, and illness (2nd ed.). New York: Free Press, 1972.

Taylor, S. Hospital patient behavior: Reactance, helplessness, or control. Journal of Social Issues, 1979, 35, 156.

Toner, J. B., & Manuck, S. B. Health locus of control and health-related information seeking at a hypertension screening. Social Science and Medicine, 1979, 13A, 823.

Tosteson, D. C. The right to know: Public education for health. Journal of Medical Education, 1975, 50, 117-123.

Turnball, E. M. Effect of basic preventive health practices and mass media on the practice of breast self-examination. Nursing Research, 1978, 27(2), 98-102.

Unger, R. Female and male: Psychological perspectives. New York: Harper & Row, 1979.

Wallston, B. S., Wallston, K. A., Kaplan, G. D., & Maides, S. A. Development and validation of health locus of control (HLC) scale. Journal of Consulting and Clinical Psychology, 1976, 44, 580-585.

Wallston, B. S., & Wallston, K. A. Locus of control and health: A review of the literature. Health Education Monographs, Spring 1978, 107-117.

Wallston, K. A., Maides, S., & Wallston, B. S. Health-related information seeking as a function of health-related locus of control and health value. Journal of Research in Personality, 1976, 10, 215-222.

Wallston, K. A., Wallston, B. S., & DeVellis, R. Development of the Multidimensional Health Locus of Control (MHLC) Scales. Health Education Monographs, 1978, 6, 161-170.

Wallston, K. A., & Wallston, B. S. Health locus of control scales. In H. Lefcourt (Ed.), Advances and innovations in locus of control research. New York: Academic Press, 1980.

Weiss, S. (Ed.). Proceedings of the National Heart and Lung Institute Working Conference on Health Behavior. DHEW Publication No. NIH 76-868. Bethesda, Md.: Public Health Service, 1975.

Williams, A. F. Factors associated with seat belt use in families. Journal of Safety Research, 1972, 4(3), 133-138.

Williams, A. F. Personality and other characteristics associated with cigarette smoking among young teenagers. Journal of Health and Social Behavior, 1973, 14, 374-380.